DOCUMENT RESUME

ED 265 198 TM 860 053

AUTHOR Phelps, Ruth H.; And Others
TITLE Application of a Cognitive Model for Army Training: Handbook for Strategic Intelligence Analysis.
INSTITUTION LOGICON, Inc., San Diego, Calif.
SPONS AGENCY Army Research Inst. for the Behavioral and Social Sciences, Alexandria, Va.
REPORT NO ARI-TR-654
PUB DATE Oct 84
CONTRACT MDA-903-82-C-0409
NOTE 167p.; Prepared by the Operating Systems Division of LOGICON, Inc., for the Army Intelligence and Threat Analysis Center.
PUB TYPE Reports - Research/Technical (143) -- Guides - General (050)

EDRS PRICE MF01/PC07 Plus Postage.
DESCRIPTORS *Armed Forces; *Cognitive Processes; *Evaluation Methods; Logical Thinking; *Models; Postsecondary Education; *Training Methods; Training Objectives
IDENTIFIERS *Strategic Planning; *Strategy Training

ABSTRACT

This technical report has two purposes. One purpose is to present an end product of a multi-year research investigation into the cognitive skills involved in performing intelligence analysis. The product is a "Handbook for Strategic Intelligence Analysis" developed for the United States Army Intelligence and Threat Analysis Center (ITAC). The other purpose of this report is to summarize the course of development of the handbook so that users and training developers may better understand the Army needs that prompted the handbook development and the research on which it is based. The report begins with a discussion of the background research into the thinking processes of intelligence analysis and of the resulting descriptive cognitive model of analysis. It then briefly describes the training products that were developed based on the research findings, including the handbook. Finally, the handbook itself is provided in an appendix which is 90% of the document. The handbook is being used at ITAC as part of their training program for new strategic analysts and as a general reference guide. (PN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

Technical Report 654

ED265198

Application of a Cognitive Model for Army Training: Handbook for Strategic Intelligence Analysis

Ruth H. Phelps, Judith A. Englert, and Sharon A. Mutter

Battlefield Information Systems Technical Area
Systems Research Laboratory

NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

U. S. Army

Research Institute for the Behavioral and Social Sciences

October 1984

Approved for public release; distribution unlimited.

TM 860 053

U. S. ARMY RESEARCH INSTITUTE
FOR THE BEHAVIORAL AND SOCIAL SCIENCES

A Field Operating Agency under the Jurisdiction of the

Deputy Chief of Staff for Personnel

EDGAR M. JOHNSON
Technical Director

L. NEALE COSBY
Colonel, IN
Commander

Research accomplished under contract
for the Department of the Army

Operating Systems Division of Logicon, Inc.

NOTICES

DISTRIBUTION: Primary distribution of this report has been made by ARI. Please address correspondence concerning distribution of reports to: U.S. Army Research Institute for the Behavioral and Social Sciences, ATTN: PERI-POT, 5001 Eisenhower Avenue, Alexandria, Virginia 22333-5600.

FINAL DISPOSITION: This report may be destroyed when it is no longer needed. Please do not return it to the U.S. Army Research Institute for the Behavioral and Social Sciences.

NOTE: The findings in this report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER ARI Technical Report 654	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) APPLICATION OF A COGNITIVE MODEL FOR ARMY TRAINING: HANDBOOK FOR STRATEGIC INTELLIGENCE ANALYSIS		5. TYPE OF REPORT & PERIOD COVERED Final Report July 1982 - June 1983 6. PERFORMING ORG. REPORT NUMBER --
7. AUTHOR(s) Ruth H. Phelps, Judith A. Englert, and Sharon A. Mutter		8. CONTRACT OR GRANT NUMBER(s) MDA 903-82-C-0409
9. PERFORMING ORGANIZATION NAME AND ADDRESS Operating Systems Division of Logicon, Inc. 6300 Variel Avenue Woodland Hills, CA 91367		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 2Q263739A793
11. CONTROLLING OFFICE NAME AND ADDRESS U.S. Army Intelligence and Threat Analysis Center IAX-PPO Arlington Hall Station Arlington, VA 22212		12. REPORT DATE October 1984 13. NUMBER OF PAGES 163
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office) U.S. Army Research Institute for the Behavioral and Social Sciences 5001 Eisenhower Avenue Alexandria, VA 22333-5600		15. SECURITY CLASS. (of this report) Unclassified 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE --

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

--

18. SUPPLEMENTARY NOTES Development of the handbook was jointly sponsored by the U.S. Army Intelligence and Threat Analysis Center (ITAC) and the U.S. Army Intelligence and Security Command (INSCOM). The U.S. Army Research Institute (ARI) monitored technical progress. Special efforts were contributed to the management of the project by Dr. Alan Goldman of ITAC.

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Analysis
Intelligence
Cognitive model
Conceptual models

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report discusses the development of the Handbook for Strategic Intelligence Analysis that is currently being used as part of a training program for analysts at the U.S. Army Intelligence and Threat Analysis Center (ITAC). The handbook grew out of a recognized need to provide analysts with improved support and training to deal with ever increasing amounts of complex information. The first step toward addressing this concern was a research program to evaluate and describe the cognitive processes that underlie analysis, synthesis, and production. (Continued)

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

i SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

ARI Technical Report 654

20. (Continued)

The research findings were then applied to the development of training materials for intelligence analysts, including the handbook presented here. This report provides a brief overview of the background research and history of the handbook and includes a copy of the handbook itself for interested readers.

Technical Report 654

Application of a Cognitive Model for Army Training: Handbook for Strategic Intelligence Analysis

Ruth H. Phelps, Judith A. Englert, and Sharon A. Mutter

Submitted by
Franklin L. Moses, Chief
Battlefield Information Systems Technical Area

Approved as technically adequate
and submitted for publication by
Jerrold M. Levine, Director
Systems Research Laboratory

U.S. ARMY RESEARCH INSTITUTE FOR THE BEHAVIORAL AND SOCIAL SCIENCES
5001 Eisenhower Avenue, Alexandria, Virginia 22333-5600

Office, Deputy Chief of Staff for Personnel
Department of the Army

October 1984

Army Project Number
2Q263739A793

Intelligence Aiding

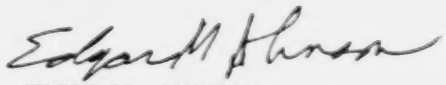
Approved for public release; distribution unlimited.

ARI Research Reports and Technical Reports are intended for sponsors of R&D tasks and for other research and military agencies. Any findings ready for implementation at the time of publication are presented in the last part of the Brief. Upon completion of a major phase of the task, formal recommendations for official action normally are conveyed to appropriate military agencies by briefing or Disposition Form.

FOREWORD

A concern of the Army in recent years has been to provide improved support and training to intelligence analysts who must deal with the increasing amounts of complex information being generated by modern intelligence collection systems. As a first step toward the development of appropriate analyst support and/or training, the U.S. Army Intelligence and Security Command (INSCOM) and the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) initiated a joint research program to evaluate and describe the human analytic processes underlying intelligence analysis, synthesis, and production. The result of that 4-year research program was a descriptive cognitive model of intelligence analysis applicable to both single- and multi-source intelligence production activities across all disciplines.

The research findings have since served as a basis for the development of training materials for entry level tactical and strategic all-source intelligence analysts. One of those products is the Handbook for Strategic Intelligence Analysis developed by the U.S. Army Intelligence and Threat Analysis Center (ITAC) and ARI. It is currently being used at ITAC to help new analysts become full contributing members of the ITAC team in as short a time as possible. In addition to providing background about ITAC as a work environment and intelligence producing organization, the handbook also emphasizes the cognitive tasks of analysis and the development of skills that enhance one's ability to think logically and analytically.



EDGAR M. JOHNSON
Technical Director

APPLICATION OF A COGNITIVE MODEL FOR ARMY TRAINING:
HANDBOOK FOR STRATEGIC INTELLIGENCE ANALYSIS

EXECUTIVE SUMMARY

Requirement:

To document the background research and rationale for the development of a handbook for conducting strategic intelligence analysis.

Procedure:

An initial research program resulted in a general descriptive model of the cognitive bases of intelligence analysis (Thompson, Hopf-Weichel, & Geiselman, 1984). These research findings plus interviews with U.S. Army Intelligence and Threat Analysis Center (ITAC) strategic analysts and managers served as the basis for development of the handbook.

Findings:

The major conclusions regarding intelligence analysis that emerged from the initial research study were:

- Analysis is a creative process.
- Quality of cognitive activity depends on organizational constraints, personal interactions, background, and training.
- The analyst's own memory is a critical resource.
- Decisionmaking pervades analysis.
- Analysis can be studied scientifically and objectively.
- There are common cognitive processes for all disciplines of analysis.

These findings were applied to the development of a handbook for strategic intelligence analysis, a copy of which is included in the report. The handbook provides analysts with important information about their job environment, a systematic approach for conducting analysis, as well as guidelines for thinking logically and analytically.

Utilization of Findings:

The Handbook for Strategic Intelligence Analysis (ITAC Report ATC-PP-2660-161-83) is specifically tailored to meet the needs of ITAC. It currently is being used as part of that organization's training program for new analysts and as a refresher guide for both new and experienced analysts.

APPLICATION OF A COGNITIVE MODEL FOR ARMY TRAINING: HANDBOOK FOR STRATEGIC INTELLIGENCE ANALYSIS

The purpose of this technical report is twofold. One purpose is to present an end product of a multi-year research effort into the cognitive skills involved in performing intelligence analysis. The product is a Handbook for Strategic Intelligence Analysis developed for the U.S. Army Intelligence and Threat Analysis Center (ITAC). The other purpose of this report is to summarize the course of development of the handbook so that users and training developers may better understand the Army needs that prompted the handbook development and the research on which it is based.

With these purposes in mind, the report begins with a discussion of the background research into the thinking processes of intelligence analysis and of the resulting descriptive cognitive model of analysis. It then briefly describes the training products that were developed based on the research findings, including the Handbook for Strategic Intelligence Analysis. Finally, the handbook itself is provided in an appendix. The handbook is being used at ITAC as part of their training program for new strategic analysts and as a general reference guide.

BACKGROUND RESEARCH

The handbook was based on the study results of a 4-year project conducted jointly by the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) and the U.S. Army Intelligence and Security Command (INSCOM). This project, Investigation of Methodologies and Techniques for Intelligence Analysis (IMTIA), was initially designed to provide recommendations for automated system support for all-source analysts (see Katter, Montgomery, & Thompson, 1979b). After studying the actual processing activities performed by the analysts during the course of intelligence production, it was discovered that not only is relatively little known about the thinking processes, but also that there is little training focus on how to subjectively process information. Thus, the focus of the study changed from a study of automated support to a study of the thinking processes underlying intelligence analysis.

The outcome of the IMTIA study was a general model of the mental activities of analysts as they filter, interpret, and analyze information (see Montgomery, Thompson, & Katter, 1979a and Thompson, Hopf-Weichel, & Geiselman, 1984 for initial and updated versions of the model; see also Montgomery, Thompson, & Katter, 1980 for an imagery production model). The model provides a basis for specifying which thinking/analytical skills should be trained but are not part of existing training programs. It also helps to determine where automated procedures or tools can support the thinking requirements of analysis--the places that are error prone or difficult because of human processing limitations.

The first step in developing the model was to formulate a general description of the tasks common to the analysis of the different disciplines of intelligence (SIGINT, IMINT, all-source). This information was obtained

through lengthy interviews with over 200 tactical and strategic intelligence personnel performing either single-source or multi-source intelligence production activities. Observation of analysts on the job and review of relevant Army and DOD manuals, reports, and instructional materials were additional sources of information regarding how intelligence analysis is performed. Published scientific research findings on human perception, attention, memory, learning, decisionmaking, and problem solving were also reviewed. The scientific literature and the information gathered on intelligence analysis were integrated in the formulation of the general model of thinking activity during analysis.

The resulting model describes the cognitive structures and processes involved in analytic thinking and identifies nine specific tasks conducted explicitly or implicitly by all intelligence analysts. These tasks are:

- o Recognizing goals and objectives;
- o Establishing baseline;
- o Recognizing uncertainties;
- o Gathering and interpreting information;
- o Formulating hypotheses;
- o Testing hypotheses;
- o Cataloging analytic procedure and results;
- o Evaluating results; and
- o Formulating the output.

While the above listing represents one logical ordering of the tasks, it is clear that the tasks may be performed in different sequences. Moreover, the tasks are likely to vary in their frequency of use and in the amount of conscious effort required for their execution.

The IMTIA study also identified two very basic processes that impact on the execution of all of these tasks. One is that analysts formulate their own conceptual models or frameworks that are unique personal ways of thinking, organizing, and interpreting. Analysts use these frameworks to help them understand the enemy threat, organize information, notice gaps in information, and make decisions. The other basic process is understanding the conceptual framework of the user of the intelligence product. By understanding the user's conceptual framework, i.e , knowing how this person thinks, views a situation, etc., the analyst can tailor the ingelligence product to meet the user's needs.

Finally, six major conclusions regarding the conduct of intelligence analysis also emerged from the IMTIA study and are briefly summarized below:

- o Analysis is a creative process. Intelligence doesn't exist as a single piece of information or even in an overwhelming amount of information. Intelligence is created by analysts as a result of actively integrating, interpreting, analyzing, and synthesizing information. What is created is a unique product of the analysts' mental processing. Intelligence is not simply finding the "right piece of information" but rather knowing what to do with the information. The analyst's conceptual framework, understanding of the client's framework, and thinking processes all contribute to that creative process.

o Quality of mental cognitive activity depends on organizational constraints, personal interactions, background, and training. The ability of an analyst to create intelligence will be helped or hindered by the restrictions, freedom, professional atmosphere and colleague relationships afforded by the mission, and working environment of the intelligence unit. The analyst's own training and background will affect the quality and range of mental processing exerted by the analyst.

o The analyst's own memory is a critical resource. Analysts must make effective use of their own memory as well as external memory sources. Analysts can learn to improve their own memory capabilities by, for example, more effectively organizing and structuring new material to be remembered. Moreover, how well analysts have organized what they know will determine how well they will be able to use the massive amount of information available from external sources such as computerized data bases, references, and card files.

o Decisionmaking pervades analysis. Every time an analyst records sorts, or interprets a piece of information, a decision is made that will influence later processing and ultimately, perhaps, commander decisions. Analysts are constantly predicting the future from partial and unreliable information. Decisionmaking is an inescapable and fundamental aspect of intelligence analysis that is often unrecognized.

o Analysis can be studied scientifically and objectively. The processes, variables, constraints, and strengths of intelligence analysis can be largely understood and documented by scientists. Objective study will help the Army provide training, equipment, and automation that will improve the quality of intelligence products and possibly reduce the time required. While scientists can never read people's minds or precisely predict how people think, there is nonetheless a great deal of analytical processing that is amenable to scientific study.

o There are common cognitive processes for all disciplines of analysis. The general model developed by the IMTIA project applies to all single-source as well as all-source disciplines. Many of the thinking processes are also fundamental to other fields of military analysis such as operations planning and collection and resource allocation. This commonality of processes allows application of the cognitive approach to not only all MI areas, but also other military fields.

PRODUCTS DEVELOPED FROM IMTIA FINDINGS

At the end of the 4-year study on the cognitive bases of analysis, the Army requested that the findings be applied to the development of training materials suitable for entry level all-source intelligence analysts. It was believed that explicit training in the thinking processes of analysis would help new analysts who had not yet benefited from years of experience actually performing analysis to be successful in their jobs within a relatively short amount of time. Two projects were therefore initiated, one aimed at tactical and one at strategic all-source analysts. The tactical project was conducted jointly by ARI, the U.S. Army Intelligence Center and School (USAICS), and the Office of the Assistant Chief of Staff for Intelligence (OACSI). This

project involved the development of a Field Circular, titled "An Introduction to Tactical Intelligence Analysis: Cognitive Preparation for the Battlefield," for teaching the fundamentals of all-source intelligence analysis. The circular will be published jointly by ARI and USAICS spring 1985. Copies can be obtained from USAICS (Office Symbol ATSI-TD).

The other project, conducted by ARI, ITAC, and INSCOM, resulted in the Handbook for Strategic Intelligence Analysis, a copy of which is included in this report as an appendix. The handbook, tailored specifically for ITAC, was designed to be used as part of their training program for new analysts and as a reference guide for all of their analysts. Data from extensive interviews conducted with ITAC managers and ITAC analysts representing a broad range of experience levels provided a specific context in which to present the findings and concepts that grew out of the IMTIA research. Part of the handbook is devoted to a description of the ITAC job environment and to general discussions of intelligence production and management. Other portions deal explicitly with logical thinking and sound analytical procedures. The next section presents a brief chapter-by-chapter overview.

HANDBOOK OVERVIEW

The first two chapters of the handbook describe the ITAC organization, including its mission, standards, information resources, intelligence products, and users. Substantial attention is given to this information, since understanding the job environment has been found to be an important prerequisite for establishing the analyst's conceptual framework as well as successful job performance and job satisfaction. Chapter three presents a broad discussion of intelligence production management with emphasis on the coordinated management of analysts, requirements, and production resources; again this information is used to build the analyst's conceptual framework. The next two chapters strongly emphasize the application of the general IMTIA findings to specific ITAC training requirements. They discuss the nature and goals of strategic intelligence analysis (chapter four) and suggest a systematic approach and analytical procedures for conducting strategic analysis (chapter five). The final chapter discusses intelligence analyst training needs and training opportunities.

Comments or questions concerning the handbook development or its contents are welcome and should be directed to the authors of this report.

REFERENCES

Katter, R. V., Montgomery, C. A., & Thompson, J. R. Human Processes in Intelligence Analysis: Phase I Overview. ARI Research Report 1237, December 1979 (b). (AD A086 503)

Montgomery, C. A., Thompson, J. R., & Katter, R. V. Imagery Intelligence (IMINT) Production Model. ARI Research Report 1210, January 1980. (AD A086 455)

Montgomery, C. A., Thompson, J. R., & Katter, R. V. Cognitive Processes in Intelligence Analysis: A Descriptive Model and Review of the Literature. ARI Technical Report 445, December 1979 (a). (AD A086 451)

Thompson, J. R., Hopf-Weichel, R., & Geiselman, R. E. The Cognitive Bases of Intelligence Analysis. ARI Research Report 1362, January 1984. (AD A146 132)

APPENDIX

ATC-PP-2660-161-83

DEPARTMENT OF THE ARMY

HANDBOOK

STRATEGIC INTELLIGENCE ANALYSIS

UNITED STATES ARMY
INTELLIGENCE AND
THREAT ANALYSIS CENTER

UNITED STATES ARMY
RESEARCH INSTITUTE FOR
THE BEHAVIORAL AND SOCIAL SCIENCES

HANDBOOK FOR STRATEGIC INTELLIGENCE ANALYSIS

30 July 1983

Prepared For:

United States Army Intelligence and
Threat Analysis Center (USAITAC)
Arlington Hall Station
Arlington, Virginia 22212

Contract: MDA 903-82-C-0409
OSD: 424
OSD Report No.: R83-039B

LOGICON, INC.
OPERATING SYSTEMS DIVISION
21031 Ventura Boulevard
Woodland Hills, CA 91364
(213) 887-4950

The views, opinions, and findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy, or decision, unless so designated by other official documentation.

ERRATA LIST FOR
HANDBOOK FOR STRATEGIC INTELLIGENCE ANALYSIS

PAGE	LINE	ERROR	CHANGE TO
v	11	Principal Consmers of...	Principal Consumers of...
v	14	ITAC: Its Standard, Values, and Goals	ITAC: Its Standard, Values, and Goal
viii	4	Thinking WHITE/RED/BLUE as Applied Source Identification	Thinking WHITE/RED/BLUE as Applied to Source Identification
3-8	9	or international climate.	or international climate?
3-8	Bottom	Thinking WHITE/RED/BLUE as Applied Source Identification	Thinking WHITE/RED/BLUE as Applied to Source Identification
4-5	Figure 4-1	COURSES OF ACTION	BATTLEFIELD TACTICS
6-1	7	...you must to establish...	...you must establish...
6-2	9	Table 6-2	Table 6-1

FOREWORD

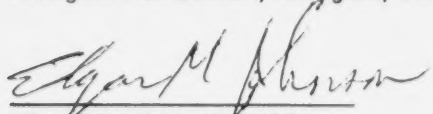
The U. S. Army Intelligence and Threat Analysis Center (ITAC) has numerous requirements from a multitude of sources to produce strategic intelligence. ITAC products have considerable impact upon the plans and decisions that determine the way in which the U.S. Army will be trained and prepared to fight wars of the future. Given the growing demands upon ITAC's resources, it is vital that new ITAC analysts become full contributing members of the ITAC team in the shortest time possible. It is our firm belief that this Handbook is a major step toward meeting this goal.

This Handbook is based on several years of research into both the processes of intelligence analysis and the procedures to improve the quality of military intelligence products. These extensive scientific investigations were jointly undertaken by the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) and the U.S. Army Intelligence and Security Command (INSCOM). ITAC has now joined with these two organizations to apply the research findings to the specific demands, requirements, and environment at ITAC. The result is the publication of this Handbook to help in the understanding of analytical processing and the production of quality intelligence.

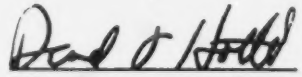
The Handbook for Strategic Intelligence Analysis (HASTIA) is a valuable reference manual that will play a central role in the orientation and training of new ITAC analysts. Its descriptions of ITAC's history, mission, resources, values, goal, and products will provide new analysts with valuable information and background about ITAC as a work environment and active intelligence producing organization. Similarly, HASTIA's discussions of the basic concepts and components of strategic analysis and the management of strategic intelligence production introduce the reader to important substantive material that is necessary for becoming an effective strategic analyst.

The most valuable contribution of HASTIA, however, is its emphasis upon the mental tasks of analysis and the need to develop skills that enhance one's ability to think logically and analytically. The importance of employing structured approaches to intelligence analysis is widely recognized as a way to avoid many of the pitfalls that result in faulty analysis and can lead to costly intelligence failures. These discussions, together with a description of over 40 distinct analytic methodologies, are valuable to the experienced and inexperienced analyst alike.

Comments on the content and utility of this Handbook should be addressed to Commander, U.S. Army Intelligence Threat and Analysis Center, Attn: IAX-PP, Arlington Hall Station, Arlington, Virginia, 22212.



DR. EDGAR M. JOHNSON
Technical Director for ARI and
Chief Psychologist, U.S. Army



COL DAVID T. HOTTEL
Commander, U.S. Army
Intelligence and Threat
Analysis Center

PREFACE

The Handbook for Strategic Intelligence Analysis (HASTIA) is a basic reference resource for new ITAC analysts. Its purpose is to provide the reader with information, discussions, and techniques that are most relevant to the tasks of strategic intelligence analysts.

The Handbook was designed with the new analyst in mind. Its style and content are introductory in nature and strive to complement existing training and orientation programs at ITAC. However, significant portions of the Handbook are also relevant to experienced strategic analysts and intelligence production managers.

Specifically, the objective of the Handbook is to introduce the reader to:

1. ITAC as a strategic intelligence center and unique component of the U.S. Army and national intelligence communities.
2. The fundamental concepts of strategic intelligence.
3. Analysis as a mental process.
4. The need to develop analytic skills and apply structured approaches.
5. The methods and techniques most appropriate for conducting strategic intelligence analysis.

The information in this publication presents the view of USAITAC and ARI. Comments on the content and utility of this Handbook are welcome and should be addressed to Cdr., USAITAC, Attn: IAX-PP, Arlington Hall Station, Arlington, Virginia 22212.

Table of Contents

TABLE OF CONTENTS

	Paragraph	Page
CHAPTER 1. INTRODUCTION		1-1
Welcome to ITAC	1.1	1-1
Purpose of This Handbook	1.2	1-2
CHAPTER 2. THIS IS ITAC		2-1
Introduction	2.1	2-1
Background	2.2	2-1
The History of ITAC	2.3	2-1
The ITAC Mission	2.4	2-3
Principal Consmers of ITAC Products	2.5	2-4
Intelligence Resources Used in ITAC Products	2.6	2-3
The Importance of Establishing a Personal Information Network	2.6.1	2-4
ITAC: Its Standard, Values, and Goals	2.7	2-4
The ITAC Standard	2.7.1	2-4
ITAC Values	2.7.2	2-4
The ITAC Goal	2.7.3	2-5
The Evolving ITAC	2.8	2-5
Summary	2.9	2-5
CHAPTER 3. THE MANAGEMENT OF STRATEGIC INTELLIGENCE PRODUCTION		3-1
Introduction	3.1	3-1
Product Quality	3.2	3-1
How Analysts are Managed	3.3	3-1
Managing Information Resources	3.4	3-2
Experienced Analysts are Resources	3.4.1	3-2
Collection Systems are Resources	3.4.2	3-2
Information Repositories are Resources	3.4.3	3-3
Managing Requirements	3.5	3-3
Production Resource Multipliers	3.6	3-4
Removing Redundant Requirements is a Multiplier	3.6.1	3-4
Preparation is a Time Multiplier	3.6.2	3-5
Generalization is a Speed Multiplier	3.6.3	3-5
Phasing Analysis from General to Specific is a Speed Multiplier	3.6.4	3-6
Exploiting All Sources is a Multiplier of Certainty	3.6.5	3-6
Information Source Multipliers	3.6.6	3-7
Capacity Multipliers	3.6.7	3-9
Summary	3.7	3-10
CHAPTER 4. INTRODUCTION TO STRATEGIC INTELLIGENCE ANALYSIS		4-1
Introduction and Definition	4.1	4-1
The Goal of ITAC Strategic Analyses	4.1.1	4-1
Strategic and Tactical Intelligence: A Useful Comparison	4.1.2	4-2

	Paragraph	Page
The Nature of Strategic Analysis	4.2	4-3
Analysis as the First Step in Problem-Solving	4.2.1	4-3
Analysis can Create Information from Sparse Data	4.2.2	4-4
Analysis as a Mental Process	4.2.3	4-4
Strategic Analysis at ITAC	4.3	4-5
Assessments and Projections	4.3.1	4-5
Levels of Strategic Analysis	4.3.2	4-6
Theater-Strategic Operations	4.3.3	4-7
Conducting Strategic Analysis	4.4	4-8
Know the Enemy -- Think Red	4.4.1	4-8
Know our Programs and Capabilities -- Think Blue	4.4.2	4-10
Know the Environment -- Think White	4.4.3	4-10
Develop a Methodical Approach to Intelligence Analysis	4.4.4	4-11
Summary	4.5	4-11
CHAPTER 5. A SYSTEMATIC APPROACH FOR STRATEGIC ANALYSIS		5-1
Introduction	5.1	5-1
A Methodology for Strategic Intelligence Analysis	5.2	5-1
The Steps of Strategic Intelligence Analysis	5.3	5-3
Step 1. Understanding the Intelligence Requirement	5.3.1	5-3
Step 2. Prepare an Initial Intelligence Survey	5.3.2	5-4
Step 3. Select an Analytic Method	5.3.3	5-8
Step 4. Execute the Analytic Method	5.3.4	5-10
Step 5. Prepare a Revised Intelligence Assessment	5.3.5	5-12
Step 6. Produce a Report of the Production Results	5.3.6	5-14
Summary	5.3.7	5-15
CHAPTER 6. TRAINING TO BECOME AN ITAC STRATEGIC ANALYST		6-1
Introduction	6.1	6-1
ITAC and the Well Trained Analyst	6.2	6-1
Commitment	6.2.1	6-1
Capability	6.2.2	6-1
Retraining	6.2.3	6-2
Exploitation of Library Resources	6.3	6-2
Academic Training and the Strategic Analyst	6.4	6-3
BIBLIOGRAPHY		BIB-1
APPENDIX A. ITAC CONFIGURATION AND DIRECTORATE RESPONSIBILITIES		A-1
APPENDIX B. ITAC TASK ORGANIZATION		B-1
APPENDIX C. ITAC PRODUCTS AND CLIENTS		C-1
APPENDIX D. ITAC AND THE NATIONAL INTELLIGENCE COMMUNITY		D-1

TABLE OF CONTENTS - Continued

	Paragraph	Page
APPENDIX E. BASIC TOOLS AND CONCEPTS		E-1
APPENDIX F. WORKSHEET TO ESTABLISH CONSTRAINTS AND RESOURCES		F-1
APPENDIX G. GUIDE TO ANALYTIC METHOD SELECTION		G-1
APPENDIX H. IDENTIFYING THE INFORMATIONAL VALUE OF DATA		H-1
APPENDIX I. COURSES AVAILABLE FOR STRATEGIC ANALYSIS TRAINING		I-1
INDEX.		IND-1

LIST OF ILLUSTRATIONS

FIGURES

Figure		Page
2-1.	(U) ITAC All Source Production	2-3
3-1.	(U) Thinking WHITE/RED/BLUE as Applied Source Identification	3-8
4-1.	(U) The Levels of Strategic Analysis	4-5
4-2.	(U) Think Red!	4-8
4-3.	(U) Become an "Expert" on the Enemy	4-9
5-1.	(U) The Steps of Strategic Intelligence Analysis	5-2
5-2.	(U) How to Create a Fault Tree	5-13

TABLES

Table		Page
4-1.	(U) Definition of Strategic Intelligence	4-1
4-2.	(U) Definition of Tactical Intelligence	4-2
5-1.	(U) Consumer Profile Checklist	5-3
5-2.	(U) Structuring Questions	5-5
5-3.	(U) Intelligence Survey Checklist	5-6
5-4.	(U) Unusual Places to Find Information	5-6
5-5.	(U) External Information Sources at ITAC	5-6
5-6a.	(U) Organizing Memory	5-7
5-6b.	(U) Organizing Memory	5-8
5-7.	(U) SQ3R: Mnemonic Strategy for Organized Material	5-8
5-8.	(U) Mnemonic Strategy For Unrelated Items	5-9
5-9.	(U) Assets of the Technical Library	5-10
5-10.	(U) Where to Look for Human Resources	5-10
5-11.	(U) Techniques to Stimulate Creativity	5-11
5-12.	(U) Ideal Product Checklist	5-14
6-1.	(U) Information Data Bases at ITAC	6-2
6-2.	(U) Sample of Periodicals at the TIF	6-2

LIST OF TERMS

ACSI	Assistant Chief of Staff Intelligence
AFMIC	The Armed Forces Medical Intelligence Center
AIS	Army Intelligence Survey
AMCA	Advanced Materiel Concepts Agency
AU	American University
AUTODIN	Automatic Digital Network
ACC	Concepts Analysis Agency
CG	Commanding General
CIA	Central Intelligence Agency
COINS	Community On-Line Intelligence System
CONUS	Continental United States
CUA	Catholic University of America
DA	Department of the Army
DARCOM	U.S. Army Materiel Development and Readiness Command
DCI	Director of Central Intelligence
DCSLOG	Deputy Chief of Staff for Logistics
DCSPCR	Deputy Chief of Staff for Personnel
DCSRDA	Deputy Chief of Staff for Research, Development and Acquisition
DCSOPS	Deputy Chief of Staff for Operations and Plans
DIA	Defense Intelligence Agency
DIAOLS	Defense Intelligence Agency On-Line System
DIC	Defense Intelligence College
DO	Director of Operations (ITAC)
DOD	Department of Defense
EEFI	Essential Elements of Friendly Information
FCD	Forces Capabilities Directorate (ITAC)
FISS	Foreign Intelligence Security Service
FORSCOM	U.S. Army Forces Command
FSI	Foreign Service Institute
FSTC	Foreign Science and Technology Center
FTD	Foreign Technology Division
GFOBB	Ground Forces Order of Battle Book
GMU	George Mason University
GWU	George Washington University
HGF	Handbook of Ground Forces
HOIS	Hostile Intelligence Security Service
HUMINT	Human Intelligence
IDHS	Intelligence Data Handling System
II	Imagery Interpreter
ILC	Institute of Land Combat
IMINT	Imagery Intelligence
IOSS	Intelligence Organization Stationing Study
IPB	Intelligence Preparation of the Battlefield
IPD	Intelligence Production Directorate (ITAC)
KGB	Committee for State Security of the USSR
LAMM	Land Armaments Manpower Model
LRPE	Long-Range Planning Estimate
MACOM	Major Army Command

MENS	Mission Element Need Statement
MIA	Missile Intelligence Agency
NATO	North Atlantic Treaty Organization
NPIC	National Photographic Interpretation Center
NSA	National Security Agency
NSC	National Security Council
OACSI	Office, Assistant Chief of Staff, Intelligence
OB	Order of Battle
OCSA	Office, Chief of Staff, U.S. Army
OPSEC	Operations Security
PPBS	Planning Programming and Budgeting System
RDJTF	Rapid Development Joint Task Force
SBDP	Soviet Battlefield Development Plan
SIGINT	Signal Intelligence
SMD	Support Management Directorate (SMD)
S&T	Science and Technology
STAR	System Threat Assessment Report
SOLIS	SIGINT On-Line Intelligence System
TATC	Threat Analyst Training Course
TIF	Technical Information Facility
TRADOC	United States Army Training and Doctrine Command
TSD	Technical Services Directorate
UM	University of Maryland
USAINSCOM	United States Army Intelligence and Security Command
USAITAC	United States Army Intelligence and Threat Analysis Center
USAITAD	United States Army Intelligence Threat Analysis Detachment
USAITAG	United States Army Intelligence Threat Analysis Group
USAITFG	United States Army Intelligence Threats Forecast Group

1. INTRODUCTION

1.1 Welcome to ITAC

Welcome to the United States Army Intelligence and Threat Analysis Center (USAITAC). Your arrival here could not have come at a more exciting time. ITAC is evolving in ways that are expected to make it the *premier intelligence analysis production center in the United States Army.*

If you are a civilian, you have been recruited because of your credentials and capabilities. If you are enlisted or commissioned in the U.S. Army, you have been assigned here because your service record matched the high standards and requirements that were listed in the personnel requisition. Whatever your status, you are here because of our belief that you have the necessary qualities, experience, and potential to help make ITAC an elite, productive, and highly respected intelligence organization.

As a newcomer to ITAC, you have probably formed some expectations about your new job and work environment. You should realize, however, that some of these expectations may prove to be an inaccurate or incomplete assessment of ITAC's complex mission, functions, and responsibilities within the U.S. Army intelligence system. This may lead to some confusion and frustration as you attempt to "learn the ropes" in your new job. Shortly, however, you will become more familiar and comfortable with the ITAC environment.

Because ITAC's work is vital to the success of the Army and the security of the United States, your period of adjustment must be as rapid as possible. To speed up this process, you must actively seek out and participate in the training and orientation programs that are available at ITAC and other organizations of the intelligence community. These include the "ITAC Today" briefing, ITAC's Threat Analyst Training Course (TATC), and the courses and programs offered at the Defense Intelligence College (DIC), the Central Intelligence Agency's (CIA) office of Intelligence Training, and the State Department's Foreign Service Institute (FSI). Together these programs can provide you with a foundation of background and training from which you can begin the process of becoming a strategic analyst.

However, your education process does not end here. It will be your responsibility to seek out those colleagues, programs, and additional sources of information that will enable you to become a *first-rate* strategic intelligence analyst. You were selected for your particular position at ITAC because of our belief in your ability to meet this challenge. While ITAC will provide you with as much help as possible, the ultimate responsibility for your success rests with you.

The following principles, if strictly adhered to, will guide you throughout your career and will enable you to reach your fullest potential as an efficient and productive ITAC strategic analyst:

- You must develop a belief in the ITAC organization, its mission and function, and the jobs assigned to you and your peers.
- You must develop a plan to succeed by knowing what your goals are and by having a schedule of objectives to achieve these goals.
- You must learn the tools and techniques of strategic analysis.

- You must make a concerted and continual effort to interact with experts, supervisors, and peers. Do not overlook anyone.
- You must be persistent and never give up.
- You must develop the desire to achieve the goals and objectives you have set for yourself.

1.2 Purpose of This Handbook

The purpose of this handbook is to help you become an effective and productive member of the ITAC team in the shortest time possible. It is not intended to replace on-the-job training or serve as a substitute for ITAC or community training programs. Rather, it will complement these efforts by providing you with a reference source and with some procedures on how to think and perform as a strategic analyst.

This handbook contains four distinct categories of information that will help you become more familiar and comfortable with your new job. These are: (1) the mission and goals of ITAC, (2) the management of intelligence production, (3) the nature of strategic intelligence analysis, and (4) procedures for performing strategic analysis. This handbook, therefore, can function in the following capacities:

- As a *reference source* of information about ITAC and the intelligence community environment within which it operates. This should prove particularly helpful during those first months when everything may be very new to you.
- As an *introduction to strategic analysis*, providing you with definitions, discussions, and descriptions of basic strategic analysis concepts, as well as information about courses and programs relating to the substantive areas of strategic affairs within the intelligence community and at universities in the Washington, D.C., area.

  NOTE: During your first few months at ITAC, you will be encouraged to attend training programs and orientation seminars. However, these programs do not address what strategic analysis is or how to approach strategic analysis requirements.
- As a *manual of strategic analytic methods and techniques*, providing many useful tools and procedures for accomplishing specific strategic analysis tasks. Together with your own personal techniques and capabilities and those you will acquire through training and experience, you will find these aids very useful for guiding you through new or particularly complicated intelligence requirements.

2. THIS IS ITAC

2.1 Introduction

As a newcomer, you undoubtedly have questions relating to ITAC's history, functions, and consumers. This chapter is designed to provide answers to these kinds of questions.

2.2 Background

ITAC is the all-source intelligence center for the Department of the Army (DA). As the Army's only national-level strategic intelligence and threat production center, ITAC is at the apex of a pyramid of intelligence organizations in the Army. Being at the apex, ITAC is striving to become the premier, the elite, the best in the business.

ITAC is under the command of the Commanding General (CG) U.S.Army Intelligence and Security Command (USAINSCOM), but under the tasking authority of the Assistant Chief of Staff for Intelligence (ACSI). The relationship to the ACSI has had a particularly beneficial impact upon ITAC and its product line. A good example of this influence is the cooperation between ITAC and the ACSI on the Soviet Battlefield Development Plan (SBDP). This ongoing project is expected to have a significant impact upon the military establishment. ITAC's role in this study will continue to be important. For this reason, the SBDP will play a particularly influential role in ITAC's development.

ITAC serves many functions and commands. We serve as a clearing house for the Army for general intelligence and as a central point for Army access into the national intelligence community (see Appendix D). By virtue of its organizational position, ITAC has responsibility for specific intelligence products to support the Army Staff.

2.3 The History of ITAC

ITAC was created in 1977 in response to recommendations to the Army Chief of Staff by the Intelligence Organization and Stationing Study (IOSS). Six geographically separate, independently functioning intelligence production organizations were merged under centralized control to form ITAC. The purpose of creating ITAC was to establish a single, streamlined intelligence analysis center for the U.S. Army. By consolidating separate intelligence organizations into a single unit, total all-source production could be both improved and expanded without significantly increasing manpower and production costs.

Although the history of ITAC as it exists today goes back to 1977 and the IOSS, its full roots can be traced to 1966 and the establishment of the U.S. Army Intelligence Threats Forecast Group (USAITFG). At that time, the Army was grappling with ways to introduce more rational and systematic methods into its long range planning, training, and materiel development efforts. ITFG was established to provide the kinds of projections and forecasts that would enable the Army to meet this need and thereby enhance its ability to meet the threats of the future. Placed under the jurisdiction of the ACSI, ITFG's mission was "to provide Department of the Army (DA) level support to the Army Study Program." This was accomplished through application of operations research techniques in the preparation of threat data and models for use by Army Units engaged in actual threat analysis. In addition, ITFG provided considerable support to Army wargaming through the development of an interdisciplinary "Red Planning Team."

In 1987, ITFG became the U.S. Army Intelligence Threat Analysis Group (USITAG) and its mission was expanded to provide threat data in support of Army

development programs, supervise Army threat analysis operations, and develop threat modeling methodology throughout the Army. To meet these responsibilities, ITAG grew from eight to 32 military and civilian personnel.

In 1969, ITFG was reorganized and its name was changed to the U.S. Army Intelligence and Threat Analysis Detachment (USAITAD). Although its central mission and functions remained the same, ITAD grew to 50 professionals by the end of 1971. Most significant was the impact that ITAD had upon Army planning, training and development processes. Together with the complementary and coordinated efforts of the Institute of Land Combat (ILC) and the Advanced Materiel Concepts Agency (AMCA), the rational and systematic foundation that had been sought in 1966 with the formation of ITFG was now firmly established.

From 1970 until the establishment of ITAC in 1977, ITAC gradually developed and took on additional responsibilities. Since 1977, ITAC has grown to approximately 500 members and has to its credit many recognized studies on a variety of threats to the U.S. Army. In particular, ITAC's revision of previously held North Korean Army strengths has been credited with influencing a presidential turnabout in 1979 on U.S. troop withdrawals from the Korean Peninsula. Special emphasis, naturally, is on the Soviet threat in all its manifestations, from specific weapons systems to combined operations.

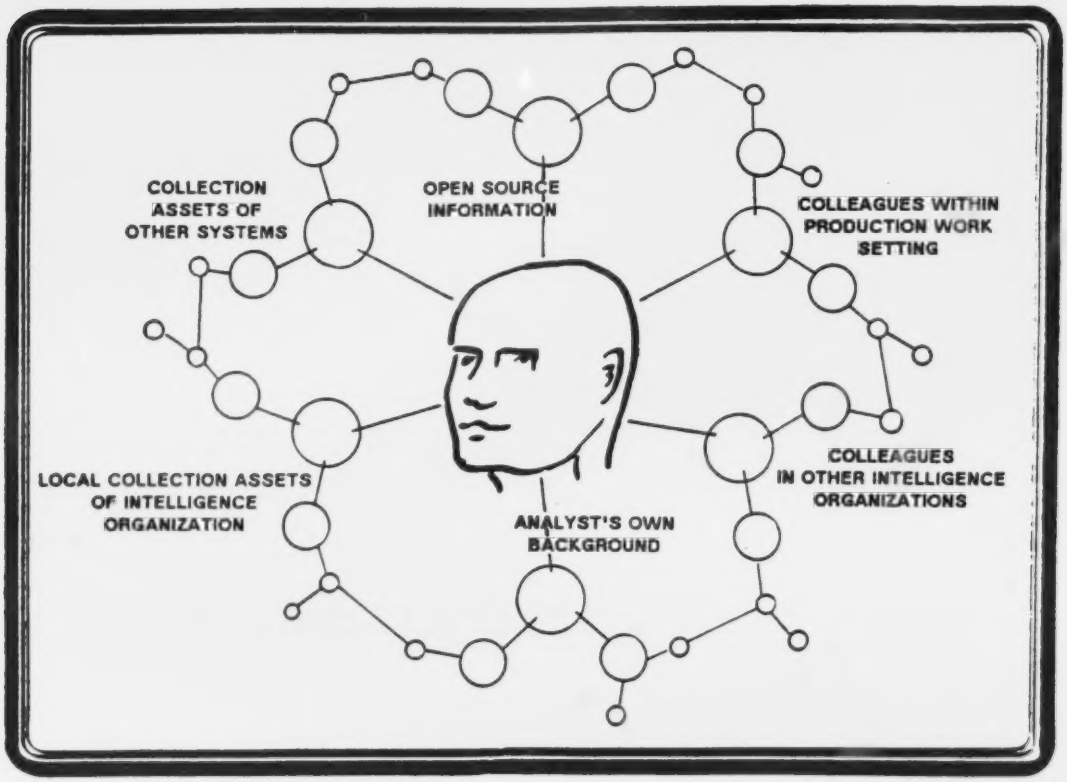

COLLECTION ASSETS OF OTHER SYSTEMS
OPEN SOURCE INFORMATION
COLLEAGUES WITHIN PRODUCTION WORK SETTING
LOCAL COLLECTION ASSETS OF INTELLIGENCE ORGANIZATION
ANALYST'S OWN BACKGROUND
COLLEAGUES IN OTHER INTELLIGENCE ORGANIZATIONS

Figure 2-1. ITAC All Source Production

2.4 The ITAC Mission

ITAC is responsible for the production of high-quality analysis that fully meets the needs of the consumers of its intelligence products. This involves producing intelligence that reduces areas of uncertainty. By reducing uncertainty, consumers of ITAC products are able to develop plans, policies, and capabilities that will enhance their ability to control future potential conflict situations. Based upon the consumer requests and the adequacy of its data bases, ITAC may utilize its own internal resources or task the intelligence collection community to provide information needed to fill information gaps. No source of information or collection method is overlooked in the effort to satisfy consumer needs (see Figure 2-1). Officially, the ITAC mission as established in 1982 is as follows:

> "To support Department of the Army planning and decision-making, in war and peace, with production of intelligence from all sources of information, in accordance with requirements validated by the Assistant Chief of Staff for Intelligence (ACSI)."

This mission places ITAC at the center of the U.S. Army's most important intelligence and strategic analysis functions. It also means that ITAC has considerable impact upon the Army's role in the overall national intelligence community, and hence a role in the national security of the United States.

2.5 Principal Consumers of ITAC Products

ITAC must establish priorities in addressing the intelligence needs of the Army. Intelligence requirements of U.S. Army senior decision-makers and planners (Army Staff) are priority one. At the major command (MACOM) level, intelligence requirements of Training and Doctrine (TRADOC) come first. However, all requirements *that are accepted* at ITAC, no matter where they originate or what the priority, receive the same careful, professional treatment and must meet the same high-quality standards. Recipients of ITAC products fall within the following categories:

- Senior decision-makers and planners at DA and national level.
- Operational forces, both tactical and special purpose.
- Force, combat, and materiel developers including the training community.
- Scientific and technical intelligence communities.

2.6 Intelligence Resources Used in ITAC Products

In producing strategic analyses, ITAC analysts draw upon every relevant source of information at their disposal. This includes open sources such as periodicals, public information, and unclassified reports, as well as information derived from imagery, signal, and human intelligence collection programs. ITAC analysts also use finished intelligence produced by agencies such as the Central Intelligence Agency (CIA), the Defense Intelligence Agency (DIA), the Foreign Science and Technology Center (FSTC), the Foreign Technology Division (FTD), the Missile Intelligence Agency (MIA), and the Armed Forces Medical Intelligence Center (AFMIC).

2.6.1 THE IMPORTANCE OF ESTABLISHING A PERSONAL INFORMATION NETWORK

Other ITAC analysts and your counterparts at other agencies are another primary source of valuable information. Strategic analysis requires a considerable amount of team work. Information that is relevant to a particular requirement may be widely dispersed. Networks of analysts who share common interests and responsibilities can be found throughout the intelligence community.

These personal information networks serve as mechanisms for sharing information, resources, and ideas. Establishing a network of contacts (or getting into an existing one) will be of paramount importance to your success as an ITAC strategic analyst.

2.7 ITAC: Its Standard, Values, and Goal

2.7.1 THE ITAC STANDARD

The essence of an organization is the standard that it sets for itself. *ITAC has dedicated itself to the standard of quality* in its product and in the means that are employed in producing it.

2.7.2 THE ITAC VALUES

The values upon which ITAC is founded were chosen after considerable deliberation at the ITAC Organizational Conference in 1982. They are:

- PURPOSEFULNESS: Each member of ITAC shall be instilled with a sense of direction toward established objectives.
- SUCCESS: ITAC shall be the premier Army intelligence production agency.

- FULFILLMENT: ITAC will help each person to realize his/her potential.
- EXCITEMENT: ITAC will create a stimulating environment to challenge individuals and encourage innovation.
- INTEGRATION: Unity in ITAC will be promoted so that all activities contribute to success.

2.7.3 THE ITAC GOAL

At ITAC, one goal is paramount:

First in Intelligence

Being "First in Intelligence" means creating an elite organization and a high-performance production environment. It means exhibiting a rhythm of operation felt by all ITAC members and evident to outside observers. It means generating curiosity on the part of the intelligence community and developing protagonists who play important roles in ITAC's relations with higher and companion intelligence organizations.

2.8 The Evolving ITAC

You have come to ITAC at a critical period. In 1982, we developed a new organizational configuration (see Appendix A) and selected a new mission, new values, and a new goal. Together, these provide a foundation upon which ITAC of the 1980s and 1990s is being constructed.

In addition to developing a more efficient and responsive organizational structure, ITAC has undertaken efforts to enhance its line of intelligence products. The product enhancement effort has been spurred and encouraged by senior Army planners and decision-makers, who appreciate the value of early identification and analysis of the threats facing the Army of the future. ITAC will support the Army goal of strategic deployment by analyzing potential conflicts ranging from low-intensity threats to general nuclear war. The objective of many of ITAC's products is to determine:

- The significance of projected changes in enemy forces as they will affect the U.S. Army.
- The conditions within which enemy forces will operate.
- The range of possible tactics and strategies that an enemy might employ.
- The circumstances that might lead to armed conflict and intervention of the U.S. Army.

2.9 Summary

In addition to improving the quality of all our products, we at ITAC have linked the achievement of our goal - "First in Intelligence" - with the fulfillment of our mission to support the DA staff. We have dedicated ourselves to creating and maintaining a high-performance environment that is rewarding for all who work here. Meeting these challenges depends upon the dedication of the strategic analysts.

As a member of the ITAC team, a large measure of responsibility rests with you. To contribute, you must:

- Understand ITAC's role in the Army intelligence production system.
- Develop a thorough comprehension of strategic analysis concepts and practices.
- Identify your own professional weaknesses and seek out appropriate training to overcome them.

3. THE MANAGEMENT OF STRATEGIC INTELLIGENCE PRODUCTION

3.1 Introduction

This chapter introduces you to issues involved in managing the analysis and support activities of an intelligence production organization such as ITAC. You will be affected by the decisions made by ITAC management during your assignment here, and you may eventually take on some of the responsibilities of ITAC management.

An intelligence producing organization is not like a commercial enterprise in that it cannot turn customers away because it is already busy. It does not turn production off after a product has been delivered because new information may require that the product be revised.

ITAC, as any other intelligence organization, often has more demands for intelligence than it has resources and time to produce. It is the intelligence production manager who shifts priorities and schedules the work, tasks the analyst, and allocates information resources to provide an information product. ITAC's management has the goal of:

maximizing the effectiveness of resources allocated toward meeting the needs of intelligence product users.

As an analyst, you are one of ITAC's resources. Decisions made by ITAC managers will place you under constraints of time pressure, resource limitations, and procedural guidelines. In return, you must be able to provide information to managers that will inform them of the impact of these constraints on product quality.

3.2 Product Quality

As an analyst, you will be an important factor in controlling product quality. In performing this function, you will be responsible for making important decisions regarding how your time is used, what information sources you use, and whether the information for your analysis is adequate.

The intelligence manager directly affects product quality through decisions made that impact upon the time and resources available for production. You can have an effect on such decisions by making the manager aware of the limitations and uncertainties of information sources and the effects of time limitations on your ability to do the required analysis.

3.3 How Analysts are Managed

Analysts are the critical resource of intelligence production. Your value as an analytic resource is measured in terms of your background, current expertise, and time available for working against production requirements. Your level of background and expertise in working similar problems is a direct factor in how long it will take you to produce a particular product. The manager is well aware of the relation between background and analytic performance. Analysis speed is increased as you are able to draw on information and procedures that have been memorized. Increased experience also broadens your knowledge of sources that are likely to have relevant information.

The manager keeps track of each analyst's academic background and experience and also keeps track of the products that analysts produce. Knowledge of country (language,

culture, geography, history, international studies, etc.) is a major part of the background knowledge that is significant for gauging the analyst's value as a resource.

The intelligence production manager has control over the analyst resources in several ways:

- Selection. Analysts selected for assignment to ITAC are picked primarily on the basis of their academic background and experience. ITAC looks for individuals with qualifications that are known to be important for the strategic analyst.
- Assignment. By assigning you to a specific division in ITAC, the manager may attempt to exploit your previous background in similar ITAC activities. Conversely, the manager may attempt to broaden your background by assigning you to an area new to you.
- Preparation. The ITAC Division manager may attempt to enhance your background by giving you opportunities to attend seminars, attend classes, and participate in work sessions or otherwise build up an area of expertise. The intent of these activities is to give you exposure to new information sources and to prepare you for meeting future ITAC production requirements.

3.4 Managing Information Resources

To the intelligence production manager, information sources are anything that can provide useful information to be exploited for an intelligence product. The most dependable information sources are 1) experienced analysts, 2) collection systems, and 3) repositories of data (libraries, personal files, and automated databases).

3.4.1 EXPERIENCED ANALYSTS ARE RESOURCES

The most valuable information source of all is the experienced analyst -- the one that knows where to look, knows where it was found before, knows what doesn't work, and may know how to ask the question better. You may not always get the answer, and what you get may be wrong, but this is the quickest way to information that may already be available. When the experienced analyst points out new information sources to you, your own background knowledge will be enhanced. Information sources you have found on your own may eventually be of use to someone else.

The intelligence manager can facilitate access to other analysts by sponsoring joint working groups, co-locating offices, and promoting informal exchanges and a cooperative work environment. Access is sometimes controlled or discouraged to prevent interference in critical work activities. As you become more familiar with the activities of ITAC, you will know when informal interaction with other analysts is appropriate. Don't be afraid to ask -- and don't feel badly if you are rebuffed by someone who is busy.

3.4.2 COLLECTION SYSTEMS ARE RESOURCES

When information needs cannot be satisfied with available information, the analyst must look to the collection assets of ITAC and the intelligence community as potential sources. Systems that collect strategically significant information are costly, and generally are shared by the intelligence

community. Access to collection systems is controlled through the ITAC Collection Requirements Division. The collection manager in this division ensures that overlapping information requirements can be served efficiently. The collection manager can also establish priorities for various requirements that are competing to use these resources. ITAC requirements may in turn have to compete with the requirements of other intelligence organizations.

It is extremely important for you to understand the tasking procedures for the various collection systems available through ITAC, and to use them. You must also know the cycle times for tasking these systems, including delays for collection coordination, mission tasking, mission execution, initial interpretations, and communications. The time line of the collection cycle must be factored into your estimates of how long it will take to produce a specific product. You have a responsibility to provide clearly defined collection requirement statements that will cue these systems to collect appropriate information in the most effective and efficient manner possible. To do collection system tasking well, you must know how these systems work and what their limitations are. Again, the most important sources of knowledge on this subject are likely to be experienced analysts who have used these systems in the past.

3.4.3 *INFORMATION REPOSITORIES ARE RESOURCES*

Access to the personal and institutional repositories of information at ITAC is controlled in many different ways. Access to sensitive information may be controlled by compartmentation. An analyst must establish a need-to-know to gain access to these sources of information.

Much of the ITAC institutional knowledge can be found in the ITAC library in the form of previous products and studies. Divisions of ITAC and project groups frequently have their own working files and databases. Personal files and references of individuals are also an invaluable asset that is available through personal contact with other analysts. The advent of the Army Threat Intelligence Production System (ATIPS) will greatly increase the access, speed, and availability of ITAC databases. In addition, ATIPS will facilitate the sharing of information through communication networks such as the Automatic Digital Network (AUTODIN) and the Intelligence Data Handling System (IDHS) and by accessing databases such as the Land Armaments Manpower Model (LAMM), SIGINT On-Line Information System (SOLIS), NPIC Data System (NDS), and the Defense Intelligence Agency On-line System/Community Intelligence Network System (DIAOLS/COINS).

3.5 Managing Requirements

One of the complexities of intelligence production management is in dealing with requirements from many consumers at the same time. Having multiple requirements means there is competition for resources, multiple tasking of analysts, and overlapping information requirements.

The ITAC Requirements Division attempts to sort out the individual needs and priorities of each consumer so that specific tasking information can be given to the analytic team that will produce the product. The intelligence requirements manager must effectively "walk" through the analytical procedure

to determine the time and resources that will be required to respond to the requirement.

As the person who will do the analysis, you may be consulted during the definition and refinement of the requirement. Before the intelligence manager can establish tasking priorities, the following things must be known about the requirement:

- How and when the product is to be used.
- How much time is available for analysis.
- What information resources will be required.
- How the product is to be disseminated.

The answers to these questions are used to negotiate a suspense time for the product, determine the level of detail and accuracy for information, and choose an analyst to perform the analysis. These issues must be agreed upon between the consumer and the intelligence manager. Sometimes the requirement must be refined or the ITAC resources supplemented with additional resources. The intelligence manager may need to request special personnel from other organizations, or special priority for the use of collection systems.

Evaluating the required information resources is a matter of determining if there is an information overlap between current or previous intelligence products, selecting an analyst (or analysts) capable of using that information, and determining if the collection plans and priorities are adequate to meet any additional information requirements.

In most cases, the intelligence manager will make these evaluations based on experience with similar requirements and products. The manager frequently requires an interactive dialogue with both the consumer and the analysts who will do the analysis. This dialogue is needed to adequately refine the requirement to fit the needs of the consumer into the available time and ITAC resources.

3.6 Production Resource Multipliers

The manager's most difficult problem occurs when the resources required to satisfy demand for information exceeds the resources that are available. A set of simple heuristics (or rules of thumb) are used by managers to effectively multiply their resources and improve productivity.

3.6.1 REMOVING REDUNDANT REQUIREMENTS IS A MULTIPLIER

A most important heuristic applied by the manager is to minimize redundant analytical efforts. This situation could easily occur if the intelligence manager did not identify overlapping information needs in requirements, and tasked different analysts to provide the same information. By identifying overlapping requirements, the intelligence manager can "kill two birds with one stone" by using one analytic task or one collection mission to satisfy two or more requirements.

Exploiting the historical intelligence base is a multiplier as well. Previously collected information can apply to many new products and requirements, especially those that depend on an analysis of trends and problem areas. ITAC managers are responsible for

seeing that records are maintained on collection coverage and products for potential use in future requirements.

Managers, who decide on job assignments for analysts, will attempt to task the same analyst with a similar requirement in order to exploit that analyst's memory of prior product information.

The most common tool for focusing on common information needs is the creation of shared databases. Order of battle (OB) is one of the most familiar shared database used in both strategic and tactical intelligence. Other forms of data stores that represent shared information sources are maps, finished intelligence products, doctrine studies (such as found in the SBDP), and target files.

Although overlapping requirements can be grouped together to share common information sources, **THE ANALYST MUST TREAT EACH REQUIREMENT SEPARATELY IN FORMULATING THE PRODUCT FOR THE USERS.** Even if the requirements are completely overlapping in their information needs, in formulating the final product you must still consider how each product user is going to use that information. If the tailoring is not done on an individual end-user basis, the value of saving resources through combined analysis may be wasted on an inferior product. Chapter 5 provides guidelines for tailoring the final intelligence product.

3.6.2 *PREPARATION IS A TIME MULTIPLIER*

Once past, time is lost -- except when you have spent that time in preparing for future information needs of intelligence consumers. In the tactical environment, intelligence preparation of the battlefield (IPB) is taught as a means of preparing information on terrain, weather, and enémy capabilities for use in time-critical decision making. IPB prepares the mind of the analyst for more rapid analytical processing as well as pre-processing much of the static information base required for analysis.

The strategic equivalent of IPB is the systematic development of knowledge about the strategic war plans of foreign forces and knowledge about the battlefields and environments in which conflicts might occur. The SBDP and Long Range Planning Estimate (LRPE) are examples of strategic IPB products (see Appendix C).

ITAC puts substantial efforts into creating and maintaining the knowledge bases used as sources for other products. Anticipation of required information is a responsibility of the intelligence manager because time and resources must be allocated for such preparations. The anticipation of requirements allows for systematic development of common information baselines, and rehearsal of analytic procedures. Preparation has the impact of multiplying the effectiveness of the analysts during situations that are time critical and/or that have limited collection assets.

3.6.3 *GENERALIZATION IS A SPEED MULTIPLIER*

Another technique used by the intelligence production manager to produce products in less time, is to designate a less-precise level of description for conveying information in the product. The time required to do analysis is in direct proportion to the level of detail and accuracy required in the product. If an intelligence requirement can be satisfied with more general descriptions

or with less accuracy, a corresponding reduction can be achieved in the time needed to produce that product. Especially in those cases where the required level of detail is not known, it is important for the intelligence manager (or the analyst) to find out how the information is to be used and how accuracy will affect that use.

An example of how generalization can reduce analysis time can be seen in a combat modeling application. One combat model might require a very detailed description of the operation of a particular kind of unit or weapon system in order to represent time-critical performance features. On the other hand, another model might require only stereotyped representations of overall force structure. The analyst would not be required to spend the same amount of time on analyzing force structure as would be required by someone looking at the details of a logistics application.

3.6.4 *PHASING ANALYSIS FROM GENERAL TO SPECIFIC IS A SPEED MULTIPLIER*

You can produce general, less-accurate information quicker than accurate detailed information. If information requirements overlap but differ in detail and accuracy requirements, the general information should be addressed first because that information can be produced more quickly. If you try to merge both requirements into a single requirement, you may compromise accuracy on one hand or delivery speed on the other.

A classic solution for overlapping requirements is to have analysts make multiple passes over the same information, extracting greater levels of detail with each successive pass. In this way, the product information requiring less detail can be satisfied immediately and with a minimum of resource expenditure.

3.6.5 *EXPLOITING ALL SOURCES IS A MULTIPLIER OF CERTAINTY*

Dealing with uncertainty is the intelligence analyst's stock-in-trade. Uncertainty is reduced by information that confirms likely hypotheses and increased by information that disconfirms them. For the strategic analyst in particular, the "ground truth" is seldom, if ever, known. The intelligence organization deals with the issue of uncertainty by creating an all-source environment to bring as diverse as possible a set of relevant information to bear on the issue.

Most people recognize intuitively that problems are more likely to yield a correct solution when there is a wider range of information about the problem. In intelligence production, information is actively pursued from any possible source that might fill information gaps, however vague or error prone that source might be. It is the diversity of information sources used by the strategic analyst that is an effective basis for producing superior intelligence products.

The term "all source environment" generally is used in the intelligence community to mean that the analyst can access information from the most sensitive national collection systems as well as from collateral and unclassified sources. ITAC management also arranges for access to other intelligence producing organizations as well as academic and other non-intelligence organizations. Formal access arrangements of ITAC are supplemented by the individual contacts that analysts have throughout the intelligence,

academic, and professional community.

The rule "Think White, Think Red, Think Blue" as depicted in Figure 3-1 can help you structure your canvassing of potential information sources that might answer your own needs. The importance of "white", "red", and "blue" thinking is addressed more fully in Chapter 4.

3.6.6 *INFORMATION SOURCE MULTIPLIERS*

Information that someone else collects for another purpose may be a valuable information source for you to exploit also. The interpretation of that information may in itself become a source if its original source is known and if its credibility for your own use has been evaluated.

ITAC products should have audit trails that trace the information sources and the analysts who performed the analysis. The intelligence production manager generally establishes the procedures and guidelines by which sources are referenced in shared databases and in products disseminated within the intelligence community. References to information sources should provide the following types of information:

- Collection mode (SIGINT, HUMINT, IMINT, Open Source).
- Collection mission identifier or source designation.
- Requirement reference for mission tasking.
- Intended use of information as viewed by the source.
- Mission parameters or standard reference.

This level of source reference makes it possible for you or other analysts to get back to the original source data to check or modify interpretations. You must always be wary of using other analyst's interpretations of information unless you know the source, the analyst, and the conditions under which the analysis was performed. If the interpretation of another analyst is to be used without going back to the original source information, the following information must be added:

- Source credibility (belief that source is capable of providing sufficient information for this interpretation).
- Source reliability (historical quality of source).
- Source precision (precision level of source for this interpretation).
- Name of analyst who did the interpretation.
- Purpose for which the interpretation was made.

Evaluation of the source is a much more difficult task than simply providing a reference to the source. An interpretation for one application may not require the same level of credibility or precision as for another application. For example, the interpretation of imagery to determine the number of weapon systems in a unit does not require the same level of precision as to determine the specific model or features of a weapon system.

Guidelines for evaluating sources are generally informal, and rating scales, where used, tend to be imprecise. Imagery is rated on a formal basis using the NIIRS scale, but this applies only to how the imagery was used for a specific target interpretation and not to the overall value of the imagery as a source for other uses.

THINK WHITE
• Who is interested in this geographic area?
• Who is interested in the topographic features of this area?
• Does that source collect information which relates to indicators of change in military, economic, social, political, cultural, industrial, technological, weather, terrain, or international climate.
• Does the source tie into a line of communication going into this area?
• Does the source deal with a similar type of environment?
THINK RED
• What are the activities that go into Red war planning?
• What are the indicators of those activities?
• What are the signatures of those indicators?
• What are sensors that are capable of detecting those signatures?
• What collection systems use those sensors?
• What are the past, present, and future collection plans for those collection systems?
THINK BLUE
• What other intelligence organizations would need this same information?
• What kind of friendly force units would use this information in their own operations?
• What kind of government organizations have this information?
• What kind of academic organizations have this information?
• What kind of commercial/industrial organizations have this information?
• What kind of foreign organizations would have this information?

Figure 3-1: Thinking WHITE/RED/BLUE as Applied Source Identification

In summary, sharing information sources can multiply the analyst's access to information. The intelligence manager tries to make this information source sharing as effective as possible by ensuring that source references are disseminated. As either an analyst or manager you must recognize the importance of recording information sources used in analysis. If interpretations of information are to be used by other analysts, it is important that the full context of the interpretation be clearly stated in the product.

3.6.7 CAPACITY MULTIPLIERS

Problems occur when the time needed by the analyst is greater than the time available. When this happens, analysts may be formed into analytical teams to decrease the production time by paralleling analysis tasks. The way in which analysts are organized as a team is a reflection of underlying principles of information-sharing and exploitation of the personal knowledge of analysts as a resource. The capacity gains are in terms of the added background knowledge of a multi-disciplinary analytical team, parallel capacity for exploiting more information sources, and ability to look at the problem from multiple perspectives.

The organizational principles applied by the ITAC manager or team leader include rules for specialization, rules for partitioning workload, rules for team communication, and rules for maintaining team integrity. The team leader maintains the integrity of the analytical team by defining individual responsibilities and by providing mechanisms for team communications. The rules for dividing responsibility include:

- Give responsibility by geographic area (White boundaries).
- Give responsibility by collection source mode (SIGINT, HUMINT, IMINT).
- Give responsibility by different levels of Red Thinking.
- Give responsibility for end-user dialogue and product tailoring (Blue perspective).

In order to maintain analytical integrity under these rules of dividing responsibility, the team leader must ensure that all analysts in the team share an understanding of the general mission parameters. The analyst team is, in effect, creating a group hypothesis of a threat situation (threat model). Within their own areas of responsibility, team members contribute to the shared threat model in terms of:

- Providing background knowledge.
- Identifying missing information.
- Filling-in information gaps from information sources.
- Testing the threat model with new information.
- Testing the threat model against doctrinal concepts.
- Evaluating the significance of changes in the threat model.
- Selecting information for product reporting and tailoring it for the product.
- Cataloging information sources and maintaining an audit trail of the methods and reasoning used in the analysis.

Although this is a very simplified description of the operation of an ITAC analytic team, you will witness these principles in action in the individual

assignments and responsibilities of analysts and in the communications between analysts and team leaders.

Your own position as a member of an analytical team will be determined by how well you can serve as an information source and by your specific area of responsibility as designated by the team leader.

3.7 Summary

The ITAC intelligence manager is faced with the problem of scarce time and resources to meet the information needs of the ITAC product users. The intelligence manager, and you as an analyst, must weigh the demands of current production requirements against the need to prepare for the time-critical information needs of wartime operation.

You will soon become aware that a critical asset of intelligence production is your own personal knowledge. You will also become aware of how the time available can constrain the types of information sources you can exploit and the procedures you can use in analysis. The management rules described in this chapter will help you to maximize the effectiveness of scarce time, personnel, and information resources in intelligence production.

Strategic intelligence is that knowledge which is required to serve as a basis for the formulation of policy and military plans at national and international levels. Oriented on national objectives, it assists in determining feasible national objectives and in furnishing a basis for planning methods of accomplishing them. *Factors which influence the military capabilities, vulnerabilities, and probable courses of action of nations are considered components of strategic intelligence.*

(Emphasis added)

(FM 30-5)

Table 4-1: Definition of Strategic Intelligence

4. INTRODUCTION TO STRATEGIC INTELLIGENCE ANALYSIS

4.1 Introduction and Definition

Strategic analysis is the most complex of all intelligence activities. It involves an ability to integrate complex circumstances and vast amounts of information in a timely manner. The strategic analyst must be able to fill in gaps of information, understand historical trends and influencing factors, and visualize the future environment. The strategic analyst must be willing to respond to requirements that might seem impossible to others. You must become well-versed in the essential concepts of this unique discipline.

"War is the realm of uncertainty; three quarters of the factors on which action in war is based are wrapped in a fog of greater or lesser uncertainty. A sensitive and discriminating judgment is called for; a skilled intelligence to scent out the truth."

(CLAUSEWITZ)

This chapter provides you with a framework for understanding the nature of the job that you have been selected to do--strategic analysis. When you finish, you will be familiar with the nature, goals, and levels of strategic analysis. You will appreciate the way in which an experienced analyst thinks, and you will understand how to begin the process of learning strategic analysis.

4.1.1 THE GOAL OF ITAC STRATEGIC ANALYSES

ITAC's role in Army intelligence is to respond to requirements and information needs of senior Army planners and decision-makers. Given increasingly dangerous global tendencies and rapid advances in weapon technologies, the Army has come to rely upon ITAC's analyses and intelligence expertise. These consumers depend on ITAC to reduce uncertainties surrounding the nature of the future battlefield, and the plans, operations, and capabilities of potential enemies. ITAC products enable Army planners and senior decision-makers to design and develop those strategies, doctrine, training, and material that will respond most effectively to future threat. The *goal of ITAC products is to reduce the uncertainties of the consumers of those products.*

Tactical intelligence is that knowledge of the enemy, weather, and geographical features required by a commander in the planning and conduct of tactical operations. It may be obtained from within his own command, or from higher or adjacent headquarters. Tactical intelligence is derived from the evaluation of information on the enemy (both his capabilities and his vulnerabilities), the weather, and the terrain. The objective of tactical intelligence is to minimize uncertainty concerning the effects of these factors on the accomplishment of the mission. The commander employs tactical intelligence to determine how to best use available resources in accomplishing the mission and maintaining the security of his command. In noncombat commands, tactical intelligence provides a basis for security measures, for decisions as to the best use of the area of operations in accomplishing the mission, and for determining or anticipating future support requirements.

(FM 30-5)

Table 4-2: Definition of Tactical Intelligence

4.1.2 STRATEGIC AND TACTICAL INTELLIGENCE: A USEFUL COMPARISON

One way to achieve a better understanding of strategic intelligence is to compare it to its front-line equivalent -- tactical intelligence. The distinctions between these companion disciplines are both illustrative and important (see Tables 4-1 and 4-2). If you are coming from a tactical unit or have had any experience in this area, you must begin to move away from your previous way of thinking about intelligence. If you have little or no familiarity with tactical intelligence, it is important that you become at least somewhat familiar with its nature and functions. Whatever your background, the comparison made here is intended to broaden your understanding of strategic intelligence analysis:

- *Tactical Intelligence* is concerned with the immediate or very near-term situation. Tactical requirements are usually specific in nature and call for a rapid turn-around for response. The consumer of tactical intelligence can be a commander or another intelligence analyst. In responding to what are usually short-term needs, the tactical intelligence analyst will rely heavily upon readily available information. This might involve accessing (1) specific collection resources, (2) manual and automated file systems, (3) personal memory, and/or (4) other analysts. Where information is lacking, the tactical analyst often looks to previous similar experiences, or calls upon intuition.

- *Strategic Intelligence* contributes directly to the formulation of plans and policies by providing decision-makers with a glimpse of future conditions and possible events. It is therefore much broader in both time and space than its tactical counterpart. At ITAC, for example, a strategic intelligence requirement may involve evaluating what will happen in the distant future, e.g., in 20 years. Such a task may be very complex and difficult given the uncertain nature and course of future events. The strategic

analyst needs information that may not exist for another 10 to 20 years. Current information is useful, but is often severely limited in its applications to the future. Yet, the strategic analyst must come up with an appropriate response to the intelligence requirement.

To overcome the barrier of insufficient information, the strategic analyst must be resourceful and imaginative. This requires training and the development of a mindset that goes beyond practical limitations.

4.2 The Nature of Strategic Analysis

Generally speaking, there are three categories of strategic analysis - predictions, projections, and forecasts. While the distinctions between them may seem trivial to a layman, they are very significant to those who conduct strategic analysis and to those who rely upon the accuracy and reliability of strategic intelligence products. It is therefore important that you understand each of these thoroughly.

The primary factors involved in distinguishing between predictions, projections and forecasts are (1) the kinds of information utilized and (2) the degree of objectivity of the analysis. A prediction can be described as a positive assertion that a future event or circumstance will or will not occur. There is no requirement regarding the kinds or amount of information needed to make a prediction. It can be based upon anything the predictor desires including simple beliefs. As such, this highly subjective form of analysis is often rejected where a significant degree of accuracy and reliability is required.

Like predictions, projections are similar attempts to shed light upon future events and conditions. However, whereas predictions attempt precision, a projection seeks to establish or narrow a range of possibility. Likewise, projections are less subjective in that they rely to a great extent upon those current and previous trends and tendencies that may affect the range of possibilities.

Forecasting is the most rigorous of the three categories of strategic analysis. In conducting a forecast, the strategic analyst looks to every relevant influencing factor. This involves designing methods and procedures that weight and balance these factors as objectively as possible. Forecasting techniques, when properly designed and conducted, are therefore preferred when the accuracy and reliability of the intelligence product is most important.

The distinctions between predictions, projections and forecasts are an important component of your understanding of strategic analysis. However, to fully understand strategic analysis, you must know what *analysis* is and how it is employed in the Army intelligence context. This requires understanding (1) the role of analysis in solving problems, (2) that analysis can create information from sparse data, and (3) that analysis is essentially a mental process requiring many skills.

4.2.1 ANALYSIS AS THE FIRST STEP IN PROBLEM-SOLVING

The need for analysis typically arises when a decision-maker recognizes that a particular problem cannot be effectively addressed without some additional consideration. Depending on the problem and the available information, analysis can perform several different functions. In some instances, analysis may be applied to integrate or "digest" existing knowledge about the problem. In other cases, analysis may be utilized to locate a "piece of the puzzle" that is crucial for making an informed judgment.

In either example, analysis is the first step toward eliminating the uncertainties and risks associated with a problem. This, in turn, facilitates the development of plans and strategies that may ultimately solve the problem.

"The term "analysis" has slightly different connotations in intelligence research and in academic research. Despite the subtle distinctions, analysis, in both contexts, refers to breaking down a large problem into a number of smaller problems and performing mental (and sometimes physical) operations on the data in order to arrive at a conclusion or generalization."

(DIC)

4.2.2 ANALYSIS CAN CREATE INFORMATION FROM SPARSE DATA

There is more to intelligence analysis than merely seeking out information about the enemy. The successful analyst is one who develops the ability to extract meaning from seemingly insignificant information. This is particularly important since information that is essential to understanding the nature of enemy actions, intentions, and capabilities is often inaccessible (secret) or not yet developed (future). This makes it necessary for the Army to train and maintain an elite corps of individuals who can satisfy intelligence requirements despite information shortfalls.

To be successful, the strategic analyst must develop the ability to create information from sparse data. This is particularly important when working on either projections or forecasts. Despite the uncertain nature of the future and the lack of concrete information about it, the analyst who is faced with a projection must predict what will or may exist or occur at some distant point in time. Unless the analyst can fill in information shortfalls, the task will be impossible. The ability to use imagination, intuition, and strategic vision to fill information gaps separates the strategic analyst from the researcher. This ability requires not only a command of available information, but also an understanding of related historical, technological, and doctrinal trends and tendencies. Similarly, the strategic analyst must be aware of internal and external factors that may influence changes in these trends or otherwise affect possible courses of enemy behavior.

Analysis is a craft that is performed in the mind of the analyst.

4.2.3 ANALYSIS AS A MENTAL PROCESS

Every occupation has specific and unique procedures and processes for performing job-related tasks. A fighter pilot must fully understand the instruments of the craft and the tactics for different combat conditions. An automobile mechanic must have extensive knowledge about the internal combustion engine and the way its components interact to move the vehicle.

Like the pilot or mechanic, you must develop a mastery of the procedures and processes of your occupation--strategic analysis. But first you must understand an important truth: *Analysis*

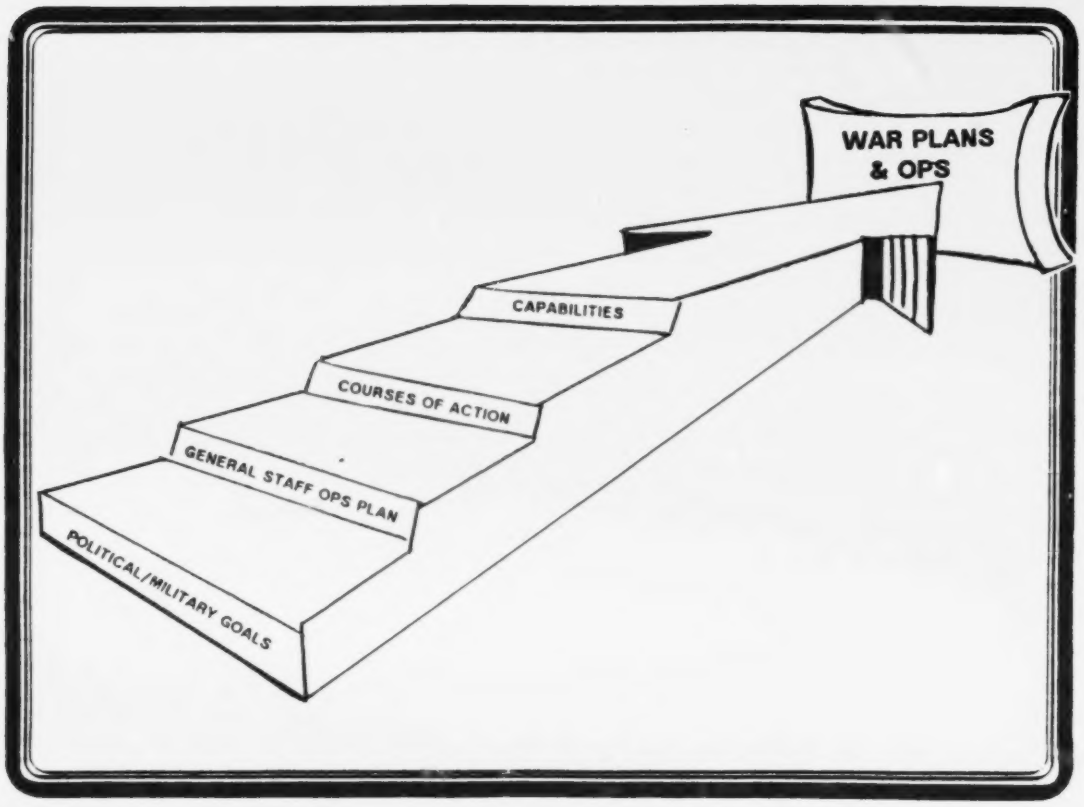


Figure 4-1: The Levels of Strategic Analysis

Is foremost a "mental" process. To effectively use your imagination, intuition, and strategic vision, you must train yourself to think analytically.

The processes that occur in the head of the analyst are numerous and complex. ITAC has some understanding of the mental (cognitive) processes of analysis, which helps us understand why some intelligence products are good while others are not. This enables us to pass on to new analysts some of the effective strategies, techniques, and tools of analysis that experienced analysts use. These are addressed in Chapter 5.

4.3 Strategic Analysis at ITAC

The following subsections describe three major components of ITAC strategic analysis: (1) assessments and projections, (2) levels of strategic analysis, and (3) theater-strategic operations.

4.3.1 ASSESSMENTS AND THREAT PROJECTIONS

ITAC analyses fall into the broad categories of assessments, projections, and forecasts. An assessment is a study or report that contains new or updated information on a current or

"When whole communities go to war -- whole peoples, and especially civilized peoples -- the reason always lies in some political situation, and the occasion is always due to some political object. War, therefore, is an act of policy.... if we keep in mind that war springs from some political purpose, it is natural that the prime cause of its existence will remain the supreme consideration in conducting it.

...Policy, then, will permeate all military operations, and, in so far as their violent nature will admit, it will have a continuous influence on them."
(Emphasis added)

(CLAUSEWITZ)

near-term topic. It is essentially a subcategory of forecasting in that it involves evaluating the impact of new information upon an already existing intelligence topic. The purpose of an assessment is to keep the intelligence consumer informed about the status of a particular situation or enemy system, organization, location, or intention.

A significant proportion of ITAC analyses involves projections and forecasts of threat. The value of threat projections is that they tend to reduce uncertainties associated with planning, training, and equipping the army of the future. ITAC threat projections may look as far as 20 years or more into the future. They are intended to provide information for countering threats the Army may face in the future.

ITAC is the only intelligence organization in the U.S. Army that is permanently tasked with producing long-range strategic projections and forecasts. It is also charged with short-term assessment studies. By performing both functions, ITAC plays pivotal roles in the near-term and future security concerns of the United States.

4.3.2 LEVELS OF STRATEGIC ANALYSIS

For both forecasts and projections, there are four levels of analysis requirements to which ITAC responds (see Figure 4-1). These coincide with the hierarchy of detail that constitute an enemy war plan.

In order to frustrate the enemy on a battlefield, it is necessary to destroy the strategies and operations that constitute the enemy's war plans. The next best thing to capturing the enemy's war plans is to replicate them through analysis. As an ITAC analyst, you will be contributing to this effort. It is important that you be able to respond to requirements at each of the following levels of strategic analysis:

- Political-military goals.
- Strategies and operations.
- Battlefield tactics.
- Capabilities.

The following subsections discuss these levels.

4.3.2.1 Level 1: Political-Military Goals

As noted by Clausewitz over 150 years ago, the use of armed forces is never an end in itself. Rather, the purpose of initiating a military action of any magnitude is to achieve specific political ends. The enemy's war plan is designed to achieve such aims. Since

an end in itself. Rather, the purpose of initiating a military action of any magnitude is to achieve specific political ends. The enemy's war plan is designed to achieve such aims. Since policy aims permeate all military operations, *strategic analysis must focus intensively upon enemy policies.*

4.3.2.2 Level 2: General Staff Operations Plan

The second level of strategic analysis is derived from the first. To achieve the political goals of military action, strategies must be prepared in advance with these goals in mind. These operations plans are usually prepared at the General Staff level of command of enemy armed forces.

By replicating these strategies through analysis, Army planners and decision-makers are able to defeat these strategies and keep the enemy from achieving his political goals.

> "If you know the enemy and know yourself, you need not fear the results of a hundred battles. If you know yourself, but not the enemy, for every victory you will suffer a defeat. If you know neither yourself nor the enemy, you are a fool and will meet defeat in every battle."
>
> (SUN TZU)

4.3.2.3 Level 3: Battlefield Tactics

To be successful, strategies designed to achieve political objectives must be reduced to tactics on the battlefield. Analyses that address enemy tactics can provide a view of what the Army may face.

4.3.2.4 Level 4: Capabilities

The way in which enemy units are organized, together with the weapons and equipment that they employ on the battlefield, comprise enemy "capabilities." Analysis of enemy capabilities is the most specific form of strategic analysis. Its goal is to predict the enemy's battlefield effectiveness. Analysts working at this level must keep in mind the relationships between the four levels of strategic analysis. This perspective results in more thoughtful analysis and a superior product.

4.3.3 THEATER-STRATEGIC OPERATIONS

The four levels constitute the elements of enemy war plans. You must visualize how they operate and interact on the battlefield. Historically, the trend has been toward increasingly massive and complex engagements and operations. The largest combat grouping during the 16th century was a regiment. These groupings grew to the size of brigades by the 17th century and to division level by the 18th century. During the Napoleonic period of the early 19th century, *armies* emerged as the largest aggregates of command.

In the 20th century, armed conflict has expanded to warfare on multiple fronts. It is probable that the next major world war will be conducted on an even larger scale--the "theater-strategic operation." As noted by Soviet Chief of Staff Ogarkov, frontal operations during World War II often halted for days and weeks at a time. However, in a war characterized as "theater-strategic," frontal operations would be closely coordinated and even more massive and continuous -- the second following almost immediately upon the first, and so forth.

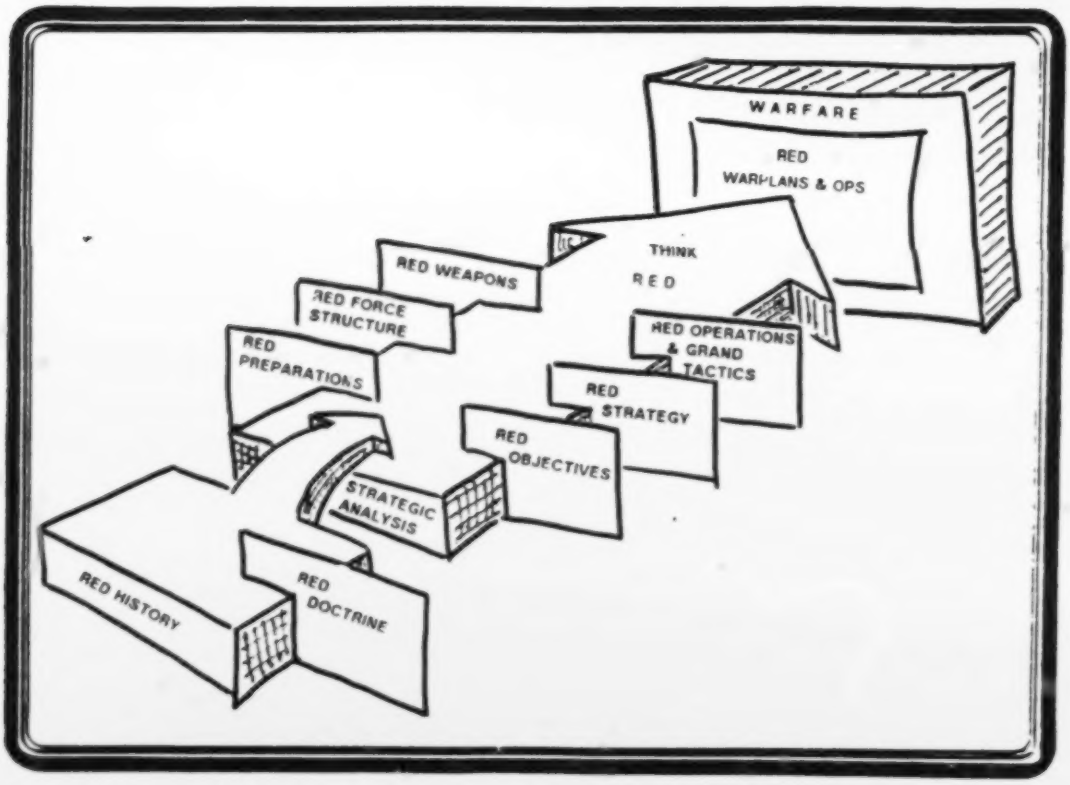


Figure 4-2: Think Red!

For theater-strategic operations to be successful, each of the four levels of the enemy war plan would have to be designed and integrated with these goals in mind. According to the SBDP, Soviet military writings, organization and weapons-development efforts indicate that the USSR is striving to achieve such a capability in the future. This is the kind of overall threat that the Army may face and which you as an ITAC analyst must understand and visualize.

4.4 Conducting Strategic Analysis

The conduct of strategic intelligence analysis can be categorized into four functional areas:

- Know the enemy.
- Know our programs and capabilities.
- Know the environment.
- Develop a methodical approach.

The following subsections discuss these areas.

4.4.1 KNOW THE ENEMY - THINK RED

A goal of intelligence is to predict enemy objectives and how they will pursue these objectives. *Knowing the enemy* allows for accurate prediction of enemy behavior and the development of plans and strategies to defeat the enemy (see Figure 4-2). Knowledge of the enemy takes two forms: (1) a thorough substantive expertise of the

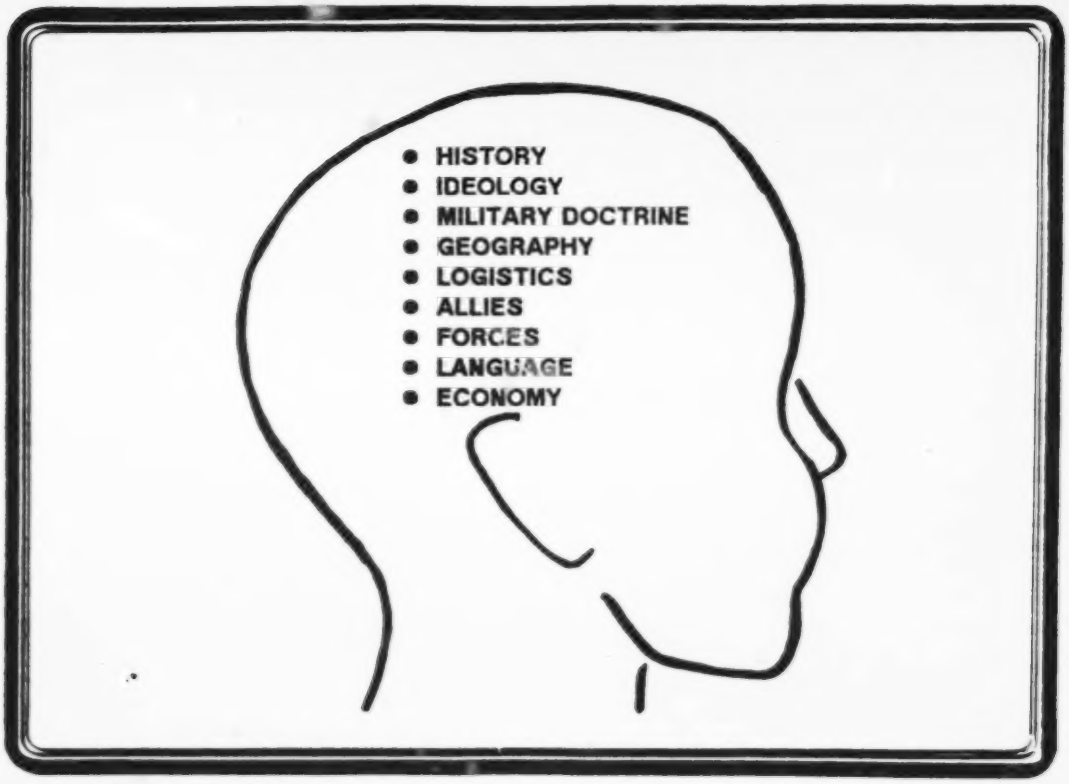


Figure 4-3: Become an "Expert" on the Enemy

enemy's capabilities and behavior, and (2) an understanding of how the enemy thinks. These two components form the essence of knowing your enemy as contemplated by Sun Tzu. They are also the goals that you must achieve to become an effective ITAC analyst.

4.4.1.1 Become an Expert on the Enemy

For the ITAC analyst, knowing the enemy goes beyond having expertise in a specific area of enemy behavior or capability. Knowing the enemy requires an understanding of his objectives, strategies, and intentions. This involves a thorough understanding of what "makes the enemy tick": *why* he is who he is and *why* he behaves as he does. To accurately analyze what the enemy will do, you must become an expert on the *sources* of the enemy's potential behavior (see Figure 4-3). Through continuous research, education, and training, you must become as familiar as possible with all the forces and influences that affect, or could affect, the enemy's behavior. These include factors relating to the enemy's:

- Military history and doctrine.
- Battlefield tactics.
- Force and weapons capabilities.
- Military-industrial programs.
- Armed forces organization.

In addition to having a primary area of expertise (such as armor, air defenses,

chemical warfare, etc.), the analyst who becomes knowledgeable in the above areas will have an advantage over the analyst who does not. The analyst who understands what influences enemy decisions and practices will usually produce a superior product and will avoid the pitfalls and miscalculations that lead to intelligence failures, misdirected policies, economic waste, or loss of life.

> The Analyst who truly knows the enemy is the Analyst who can think like the enemy.

4.4.1.2 Understand Enemy Behavior

Training yourself to become an expert on the enemy is your first step toward becoming a high-quality strategic analyst. However, there is more to knowing the enemy than simply having at your disposal facts about enemy doctrine, capabilities, organizations, etc. The facts must be molded to achieve an understanding of enemy behavior. To be able to predict how the enemy will act, you must develop the ability to *think* like the enemy.

To become an effective *red thinker* you must be able to put aside your own ways of thinking and the influences of your society, culture, and organization. By practicing "putting on a red hat," so to speak, you will become able to look at a situation from the enemy's perspective. This will help you to replicate how the enemy views the world: strengths and weaknesses, opportunities and constraints, foes and allies. This will result in more accurate predictions and intelligence products that are more responsive to the needs of Army planners and decision-makers. Thinking red requires using many different organizational perspectives within the red framework.

4.4.2 KNOW OUR PROGRAMS AND CAPABILITIES - THINK BLUE

Much of the enemy's behavior may appear inexplicable unless you also *think blue* (develop expertise about our own plans, programs, and forces). To *predict* the nature and level of threat the Army may face in the future, you must take into consideration the Army forces, weapons, and systems that will be targeted by the enemy. Much of what an enemy does in the way of planning, training, and force modernization is in response to our own efforts in these areas. Understanding this action-reaction component of enemy behavior is crucial for effective strategic analysis.

4.4.3 KNOW THE ENVIRONMENT - THINK WHITE

In addition to knowing the enemy (*think red*) and our own forces and programs that may be threatened on the battlefield (*think blue*), you must also consider the environment where conflict may occur (*think white*).

Wars are waged within environments of varying extremes and complexities that affect the way in which forces, systems, and tactics are employed. For example, a major component of the combat environment is topology. Threat to Army units in a tropical setting may differ substantially from that encountered in desert or mountainous terrains.

Other environmental elements that may influence the nature and intensity of combat-related threat include weather, population densities, and transportation facilities. Combat itself creates new environmental factors that threaten vital systems and operations. These may include both intended and

unintended consequences of electronic and chemical warfare, or nuclear effects such as blast, radiation, electromagnetic pulse, and fratricide.

> To be effective in responding to intelligence requirements you must first establish a methodology or **Plan of Attack.**

> • **Understand** the requirement
>
> • **Think** through your basic assumptions and **write them down.**

4.4.4 DEVELOP A METHODICAL APPROACH TO INTELLIGENCE ANALYSIS

To be an effective *strategic analyst*, you must handle an intelligence requirement in an efficient and systematic way. Organizing your production is as important as the analysis itself. To be most effective, you must develop a *methodology* for responding to different kinds of intelligence requirements.

To many newcomers to the world of strategic analysis, the term methodology evokes visions of complicated mathematical formulas, reams of computer printouts and a language that is comprehensible only to methodologists. This, of course, is a distortion of what methodology really is. Methodology is first and foremost the creation of a thorough and workable structure within which to employ analytic skills. It is essentially a "plan of attack" that you develop prior to any substantive research, analysis, or production activity.

Methodology provides both form and direction to the application of skills, and a forum for creative thinking. By serving as a structure within which to work, methodology acts as a catalyst that allows projects to reach their true potentials.

Quantitative methods will often be valuable in your work as a strategic analyst. But as demonstrated in such products as the SBDP and the LRPE, methodology is not confined to the quantitative arena. Before performing analysis, you must accomplish the following tasks:

- Understand the requirement.
- Analyze your assumptions.
- Develop an information-gathering strategy.

The success of the LRPE and the SBDP can be attributed in part to the careful execution of these tasks prior to dealing with the substance of the studies. These tasks are discussed and developed in more detail in Chapter 5.

4.5 Summary

Analysis serves many different functions. A need for analysis may arise from a recognition that a problem cannot be solved without additional information or consideration. Analysis may be applied to produce information where no relevant data exist; this is particularly true when the analyst must make a projection or forecast. Analysis is used in tactical and strategic operations, and the differences between the two are informative.

Analysis is essentially a mental process, and relevant thinking skills can be enhanced through training.

The goal of strategic analysis is to reduce the uncertainties of ITAC consumers, to enable them to develop plans

and policies to meet future threats. The four levels of strategic analysis match the categories of detail that constitute an enemy war plan. The "theater-strategic" operation is the logical next step in global warfare. By becoming familiar with this concept, you will be able to visualize the operational environment and thereby produce a better product.

You must know the enemy and to try to think like the enemy. In addition, you must learn about the "blue" systems that may be threatened by enemy actions and that, in turn, influence enemy behavior. You must take into consideration environmental factors that may impact upon operations and systems under combat conditions.

Finally, to become efficient at performing strategic analysis, you must develop a systematic approach or plan of attack. Characteristics of such a plan include taking steps to (1) understand the requirement, (2) analyze your assumptions, and (3) establish a strategy to make available all necessary information.

5. A SYSTEMATIC APPROACH FOR STRATEGIC ANALYSIS

5.1 Introduction

This chapter provides you with a general approach to use for most of the intelligence requirements you are likely to encounter. It is important for you to understand that the steps outlined in this approach are intended only to provide a model for developing an analytical approach of your own. The experience you eventually gain from answering many intelligence requirements will allow you to modify and by-pass certain steps. Nevertheless, by understanding the rationale for using a systematic approach and by incorporating the steps of the following approach to analysis into your own analytic efforts, you will have established a solid foundation for producing high-quality strategic intelligence.

5.2 A Methodology for Strategic Intelligence Analysis

The analytic approach developed in this chapter is presented as a flowchart of procedural steps (see Figure 5-1). Progress through these steps is achieved by completing certain procedures in each that are designed to lay the groundwork for the next step.

The following brief overview will provide you with a feeling for the six component steps of the strategic analysis process:

The first step in conducting strategic analysis is to *understand the intelligence requirement*. By completing this step you obtain a thorough understanding of the consumer's intelligence needs and expectations for the finished product. This is important because the consumer's requirements provide direction for the entire analytic effort.

The second step is to *prepare an initial intelligence survey*. This results in the selection and organization of background knowledge that will allow you to recognize existing pertinent information and to identify areas where more information is needed.

In the third step, you first determine whether the existing information is sufficient to satisfy the consumer's intelligence requirements. (If so, no further resources need be allocated to the job and you can proceed to the final step of the methodology.) If more information is needed, then you must *select an analytic method*. This involves choosing an established method (or designing a new one) to produce an intelligence product that best answers the consumer's requirement within the constraints of your time and the available resources.

Following the selection of an analytic method, the fourth step is to *execute the method* by gathering information pertinent to the consumer's requirements and then evaluating the reliability of this information.

In the fifth step, information determined to be reliable is subsequently used to *prepare a revised intelligence survey* This survey incorporates new information into the existing framework of the initial survey. Then, you must again determine whether the revised intelligence survey satisfies the consumer's intelligence requirements. (If not, more information must be gathered and evaluated, and the survey must be revised again. This cycle is repeated until you determine that the consumer's intelligence requirements are satisfied.)

When the revised intelligence survey satisfies the consumer's requirements, you proceed to the sixth step and *produce a report* that answers the consumer's specific questions and reduces the uncertainty that created the requirement.

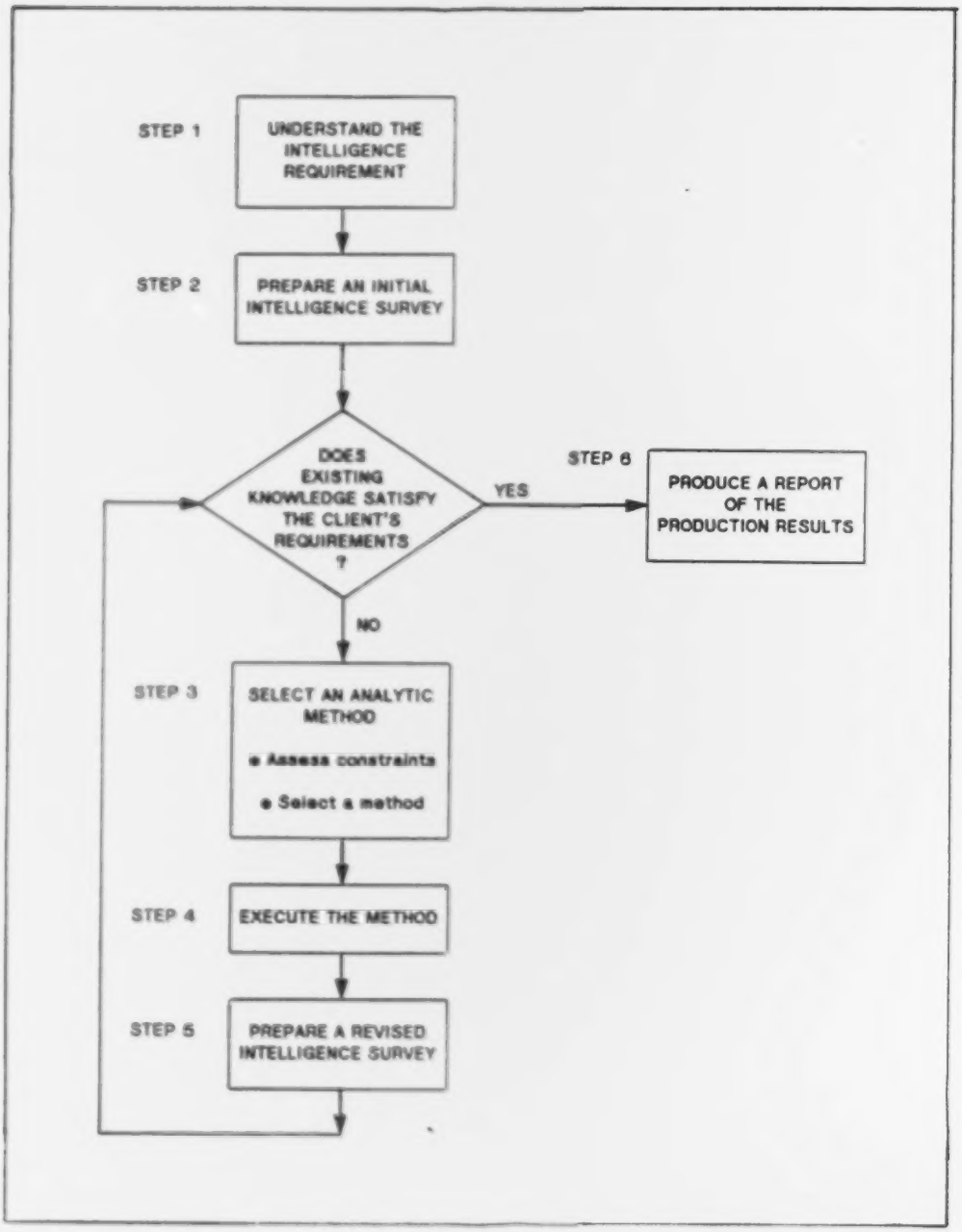


Figure 5-1: Steps of Strategic Intelligence Analysis

The following sections describe each strategic analysis step in greater detail and point out some thinking skills you may use, some problems you might encounter, some procedures to help you complete each step, and some techniques to improve your thinking skills and help you avoid problems.

5.3 The Steps of Strategic Intelligence Analysis

5.3.1 STEP 1: UNDERSTANDING THE INTELLIGENCE REQUIREMENT

Products are created to meet specific consumer requirements. Indeed, *these requirements are the focus of the entire analytic process.*

An initial lack of understanding of the consumer's requirements may ultimately lead to an imprecise and vague intelligence product or one that is too detailed to be of use to the consumer. Since this will certainly lead to consumer dissatisfaction and wasted time, you should have an undistorted picture of the consumer's requirements before beginning your work. To do this, you must know the consumer, understand the consumer's specific intelligence requirement and time frame, and know how the information in the final report will be used. Completion of Step 1 will help you to obtain and organize this knowledge.

5.3.1.1 Procedures/Tools for Step 1

To maximize your knowledge of each consumer and the consumer's individual intelligence requirements, you should attempt to document answers to all of the questions in the *Consumer Profile Checklist* (see Table 5-1) in your product folder.

Information to help you understand consumer requirements may be obtained from the:

- Production Requirements file.
- Requirements Office.
- Other ITAC analysts.

When you are satisfied that you understand the consumer's intelligence requirement, you should determine whether the requirement is "do-able." That is, how successful can the analysis be, given the consumer's level of expectation? If the requirement is unrealistic, it is extremely important to communicate this fact to the consumer or your supervisor, who may then be able to recast it in a manageable form.

- Who is the consumer?
- What does the consumer already know about the topic of analysis?
- What are the consumer's areas of uncertainty?
- What information does the consumer require and how will this information contribute to the reduction of his uncertainty?
- What is the ultimate purpose for the collection and analysis of information, i.e., how will the consumer use this information?
- What historical breadth does the consumer expect?
- How long is the information in the product expected to be relevant?

Table 5-1: Consumer Profile Checklist

5.3.1.2 *Potential Difficulties/Suggestions for Step 1*

Understanding the consumer's intelligence requirements depends upon the efficiency of the consumer/analyst communication process. The consumer's (as well as the analyst's) expectations, assumptions, beliefs, attitudes, and existing knowledge can influence this process. For example, the consumer may leave a critical piece of information out of the communication of product requirements simply by assuming that you already have this information. Similarly, you may incorrectly assume that you understand a consumer's current requirements because you know a great deal about that consumer's past requirements.

Assumptions will often be relied upon to fill certain information gaps when there are no other available means. Frequently, assumptions form a basis for how analysis is performed and for how conclusions are drawn. This can save time, but unchecked assumptions can easily lead to errors. It is important to be aware of the assumptions used to fill information gaps. (See Appendix E, Section 2.1 on "Identifying Assumptions.")

The problem of prior assumptions is magnified when intelligence needs are communicated through many levels. Consider the distortion that can occur when information is communicated through several bureaucratic levels, each of which can revise and append the message according to its own set of pre-existing assumptions. Given the frequency with which intelligence needs are communicated in this fashion, you may seldom encounter a situation in which initially you completely understand the intelligence requirement. Some general rules that will facilitate your communication with the consumer are:

- Use your understanding of the consumer's present state of knowledge and fundamental assumptions to guide your survey of the intelligence requirements.
- Identify and evaluate the validity of your own assumptions. Note how these assumptions may affect your analysis.
- Be willing to indicate your own uncertainty and lack of understanding.
- Establish a dialogue with the consumer whenever possible.
- Establish a regular dialogue with other analysts.
- Learn to generate structured questions that request specific, focused answers (see Table 5-2). This will satisfy informational requirements without wasting the consumer's, other analysts', or your own time.

5.3.2 *STEP 2: PREPARE AN INITIAL INTELLIGENCE SURVEY*

Preparing an initial intelligence survey is the process of collecting, evaluating, and organizing background knowledge about the topic area of the intelligence requirement.

In one sense, this process involves the accumulation of extensive *general knowledge* (for example, existing intelligence, the geographic features, the political climate, and the cultural history of the country or countries implicated in the topic). The collection and organization of this type of knowledge may take days, months, or years, depending upon your initial level of expertise in an area.

In a second, more practical sense, preparing an initial intelligence survey involves collecting and organizing *only*

The purpose of asking structured questions is to reduce the amount of thinking required to answer a question, and to limit the answer to a specific piece of information. Here are some examples of structured and unstructured questions:
STRUCTURED
- Where is the enemy deployed? - How is the enemy organized? - What are the enemy's possible courses of action? - What objectives could this deployment of enemy forces have? - How long would it take for this force to fully mobilize?
UNSTRUCTURED
- What do you think the enemy is up to? - What do you think of enemy weapon systems? - How do you feel about enemy intentions?

Table 5-2: Structuring Questions

that subset of information from the general knowledge base that directly applies to the consumer's intelligence requirements. That is, the existing general body of information is filtered to produce an initial survey that is highly pertinent to the current requirements.

While the initial intelligence survey can be distinguished from general knowledge of the topic, it is nevertheless dependent upon the scope of this latter information. Therefore, you should make every effort to increase your awareness and understanding of existing background information on the intelligence topic.

Using select pieces of background information, you can tailor an initial intelligence survey to the current intelligence requirements. This will define what is known about this area of intelligence. To avoid "re-inventing the wheel," you must be familiar with existing intelligence information and be able to assess its reliability, accuracy, and applicability to the current problem.

Upon comparing the analytical objectives of the current problem to the existing intelligence data, you may find that it contains all of the information you need to satisfy a consumer's intelligence requirement. If it does not contain this information, you will nevertheless gain a much clearer idea of what to look for to fill in the gaps. In defining what is known about a topic, the initial intelligence survey also helps define what is *not* known. This survey is, therefore, instrumental in helping you focus and direct the search for information to fill in areas of uncertainty in the intelligence topic.

5.3.2.1 Procedures/Tools for Step 2

The following procedure will help you develop an organized and complete survey of the intelligence situation:

- Have a basic understanding of the topics in the Intelligence Survey Checklist (see Table 5-3).
- When information covered by the checklist points is inadequate, obtain additional information. Check out more than one source; look for information in *unlikely* as well as likely places (see Table 5-4); be aggressive in obtaining pertinent information.

Know as much as you can about:

- the product history related to the threat
- the collection history against the threat
- the consumer's history in dealing with this threat
- the history of the country in which the threat exists
- the current foreign policy of the country in which the threat exists
- the current military policy for the country in which the threat exists

Table 5-3: Intelligence Survey Checklist

- Seek out and incorporate information from previous intelligence products, but *do not* rely on this information alone. A current survey is critical. The following sources, if available, may contain recent intelligence products that are related to your consumer's requirements:
  - Technical library.
  - Product history file.
  - Computerized data bases.
  - Open source literature.
  - Closed source literature.
- Determine the relevance of all collected information to the current requirements.
- Document the information in the intelligence survey in your product folder. Note the source and the status (age, reliability, classification, etc.) of this information.
- Refer to Table G-1 in Appendix G for additional procedures to aid in the preparation of an initial intelligence survey.

- Travel agencies
- Foreign radio stations
- Communities of foreigners in the U.S., e.g., Chinatown, Little Italy
- Chamber of commerce publications
- Statistical and census reports
- Geological surveys
- Country tourism bureaus

Table 5-4: Unusual Places to Find Information

- Other intelligence agencies
- Other government agencies
- Public and university libraries
- Open source materials
  - Professional journals
  - Translations of foreign publications
  - Newspapers
  - Military publications

Table 5-5: External Information Sources at ITAC

5.3.2.2 *Potential Difficulties/Suggestions for Step 2*

The thinking skills that are used to formulate an initial intelligence survey are similar to those used in the day-to-day learning of new information. They include recognizing the pertinence of new information, organizing or integrating new information with old information, knowing how to store and retrieve information (whether it be in memory, a computer data base, or even a product folder), and using this information to make inferences about unknown factors.

General background knowledge about an intelligence topic constitutes a very large body of information, and it is neither possible nor desirable for you to remember all of this information. It is necessary, however, for you to remember the more important aspects of this information and where to go to collect additional information. Some obstacles you may encounter in doing this and some suggestions for getting around them are given below:

- Information that is remembered as a disconnected, unorganized set of material is both difficult to memorize and virtually impossible to recall when it is needed (see Tables 5-6a and 5-6b).

  This can cause you to devote more effort than necessary to "re-collecting" information you have collected previously. It can also cause you to leave critical information out of the initial survey.

  Organizing information into meaningful "chunks" can greatly increase the amount of information you can hold in your memory. For example, you could organize information about the history of military policy of the Soviet Union by tracing the evolution of military doctrine through the associated writings of key individuals who developed that doctrine. When you need to recall this information, you will be more likely to recognize its applicability and remember it in its entirety because it is meaningfully organized.

- Information in memory is harder to remember when it is used infrequently. This could cause you to develop an incomplete initial survey by failing to remember pertinent information.

  Develop a sensitivity to situations in which you know your memory will be taxed.

  Don't always rely on your memory, especially when external information sources are easily accessible (see Table 5-5). Compile a list of external information sources and refer back to this list frequently. Use these sources to supplement the information in your memory and to verify its accuracy.

Take about a minute and memorize these letters: I B M N S F C I A N R C O P E C Now try to recall as many of the letters as you can. After you have recalled the letters, turn to the next page.

Table 5-6a: Organizing Memory

- Memory for information becomes distorted over time; i.e., it becomes harder to distinguish fact from fiction.

  The older the memory, the more likely it is to be unreliable. A related problem is that irrelevant information is often well remembered because it is unusual or unexpected. These two memory limitations can lead to

biased initial surveys.

Document important information, noting whether the information is fact or inference, and review this information frequently.

- Memory is exceedingly poor for unrelated bits of information. For example, information can be left out of the survey simply because you may have forgotten the name or designation of some available sources of information. If this happens, you obviously did not obtain and incorporate the source's information into your initial survey.

  Use mnemonic strategies for memorizing important information (e.g., names of external information sources, classification codes). Develop strategies to organize information and to aid in remembering facts.

  Descriptions of memory strategies that have proven effective in the past can be found in several popular books on memory (e.g., Lorayne & Lucas, 1974). Table 5-7 lists the steps for remembering meaningfully associated material. Table 5-8 provides a description of steps in creating your own mnemonic strategies.

You probably had a difficult time recalling all the letters. However, if you apply an organizing principle designed to "chunk" the letters into meaningful units - IBM, NSF, CIA, NRC, OPEC - you will have less difficulty in recalling the letters.

Table 5-6b: Organizing Memory

S = Survey Q = Question R = Read R = Recite R = Review • Skim the material to obtain an overview. • Skim the material a second time and generate questions. • Read the material in depth. • Re-read and describe the central contents to yourself. • Review those areas in which questions remain unanswered or where understanding is incomplete.

Table 5-7: SQ3R: Mnemonic Strategy for Organized Material

5.3.3 *STEP 3: SELECT AN ANALYTIC METHOD*

Once you have formed a current intelligence survey, you may be able to answer the consumer's requirement with the information already available in this survey. (If so, the next step is to produce a report for the consumer.) In most cases, however, you will identify information and analytical gaps in the initial survey that must be filled in to satisfy consumer requirements. With these gaps identified, you can select an existing analytic method or create a tailored method to guide the application of resources and the analysis of information these resources provide.

An analytic method is a clear, precise plan for conducting analysis for the current intelligence requirement. You are not limited to using only one method for a given requirement. Each individual requirement will determine the particular analytic method, and you should consider several methods before selecting

one that is eventually used. Examples of established analytic methods are simulation, formal hypothesis testing, and "cut and paste". These and other established methods are described in Appendix G.

- Establish cues to help you remember. For example, the letters in ROY G BIV are cues to the initial letters of the prism colors.
- Whenever possible, associate the material to be remembered to the cues by forming a mental image of the association. When visual imagery is not possible, create a meaningful phrase or sentence using the cue and the material to be remembered.
- Rehearse the association between the cue and the to-be-remembered material until thinking of one leads you to think of the other.

Table 5-8: Mnemonic Strategy For Unrelated Items.

As you gain more experience, you will develop your own analytic methods and techniques. Some may be novel; others will incorporate some of the features of those listed in Appendix E. The use of a well-thought-out method leads to a product of higher quality than does a haphazard, unsystematic approach. It is important that you be familiar with several kinds of analytic methods and the types of situations in which to use them.

Before you can select a method to conduct analysis, you must be aware of constraints on analytic resources. Some examples of these are the suspense time for completing the analysis and the priority for use of available resources.

Constraints limit the availability of time and resources to meet the consumer's needs. It is necessary that you select a method that increases the efficiency of conducting analysis *within* the constraints. By ignoring constraints, you run the risk of wasting time waiting for resources to become available, and you may fail to meet the allotted suspense time for the product. Using the Step 3 procedures and tools, outlined below, will help you determine constraints and establish an analytic method for any intelligence requirement.

5.3.3.1 Procedures/Tools for Step 3

Use the "Worksheet to Establish Constraints and Resources" (see Appendix F) to increase the probability that you consider and account for all relevant constraints associated with the requirement. Then choose a method with these constraints in mind.

For any intelligence requirement, evaluate at least two possible methods. This will counteract the tendency to use a single method for all situations. To evaluate methods, use the "Guide to Analytic Method Selection" (see Appendix G).

Be systematic in planning your use of resources:

- know where and what the available resources in your community are.
- know the assets of the technical library (see Table 5-9).
- exploit the available human resources in your community (see Table 5-10).

Document the method you choose and the steps for its implementation and completion.

- Newspapers
- Maps
- Reference books (history, foreign policy, military policy)
- Journals
- Automated data bases

Table 5-9: Assets of the Technical Library

- Travel agencies
- Country tourism bureaus
- Well-traveled friends and acquaintances
- Your own association with other analysts
- Intelligence directories
- DoD phone book
- Professional and academic associations
- Universities
- Other intelligence agencies

Table 5-10: Where to Look for Human Resources

5.3.3.2 *Potential Difficulties/Suggestions for Step 3*

Establishing an analytic method requires that you be adept at analyzing your constraints, evaluating the appropriateness of the methods available to you, and remembering and using available resources. These skills, in turn, require that you be creative and flexible in your thinking. By not taking into account all relevant constraints, or by failing to explore a variety of methods and available resources, you may prematurely adopt one method regardless of its applicability to the current situation. This may be less than optimal for all but a few situations.

Also, the failure to explore a variety of information sources may result in the embarrassing absence of a critical piece of information in the final product. The use of the "Worksheet to Establish Constraints and Resources" (see Appendix F) and the "Guide to Analytic Method Selection" (see Appendix G) will facilitate your selection of an appropriate method. Some specific self-help procedures that will stimulate your ability to think creatively are described in Table 5-11.

5.3.4 *STEP 4: EXECUTE THE ANALYTIC METHOD*

The first sub-step in executing the analytic method is to gather the necessary information identified in the initial intelligence survey. The second sub-step is to analyze or evaluate the information that you have collected.

The analytic method that you have established will, to some extent, guide your efforts in gathering information. You should refer to this plan frequently to avoid overlooking a possible information source. Some flexibility should be built into this plan to allow you to evaluate informational sources and to explore promising leads that are not specifically detailed in the plan.

- BRAINSTORMING
Generate as many ideas as you can for solving a problem. Do not worry about how silly or impractical your ideas are during this generation phase.

- ATTRIBUTE LISTING
Isolate and select the major characteristics of a problem topic. Identify as many of their attributes as possible without critical evaluation. For each attribute, consider its relevance to the problem topic.

- FORCED OBJECT TECHNIQUE
Select a fixed idea or object then randomly select another idea or object and attempt to relate the two. Free associate other ideas from this forced relationship.

- AD HOC ANALYST GROUPS
Establish an informal group of colleagues that share similar interests or problems. Meet regularly to share ideas, experiences, and new techniques for problem solving.

- CAR POOLING
Find a car pool that has a cross section of analysts and/or production managers.

- CONCEPT PAPERS
Write your ideas down in a concept paper and circulate it to those whose opinion and expertise you value. Request comments and suggestions.

Table 5-11: Techniques to Stimulate Creativity

As you gather information, it should be evaluated for its reliability, relevance to the intelligence topic, and ability to reduce the areas of uncertainty in the initial survey. Only information determined to be reliable, relevant, and truly informative should be used to revise the initial intelligence survey. This insures that the final intelligence product contains a more accurate, useful answer to the consumer's requirements.

5.3.4.1 Procedures/Tools for Step 4

Explore as many information sources as possible within the existing time constraints. Determine the degree of informational value for each information source (see Appendix H).

Use a checklist for rating information on the dimensions of pertinence, accuracy, reliability, and ambiguity.

Learn how to use automated decision aids.

Document all information, its source, and its reliability in your product folder.

Refer to Table G-1 in Appendix G for additional procedures to aid you in executing the analytic method.

5.3.4.2 *Potential Difficulties/ Suggestions for Step 4*

In gathering information, people tend to pay more attention to data that confirm their initial ideas or assumptions. Indeed, analysts can fail to collect information that could *disconfirm* their ideas. This can be a serious mistake, since disconfirming evidence logically carries as much weight as confirming evidence.

Other problems that may arise when collecting information are the failure to seek multiple, independent pieces of information, inordinate attention to unreliable, irrelevant, or ambiguous information, and too little attention to pertinent information. These latter two problems directly influence the salience of collected information and indirectly influence subsequent memory for the information.

More specifically, information that receives a great deal of attention becomes more salient. Very salient information will be easily remembered, while less salient information will be easily forgotten. This can, of course, lead to a biased final product.

Because you will analyze very complex, ambiguous information, you will probably encounter some difficulty in remembering, organizing, and evaluating your information. To deal with this "information overload", you will automatically use simplifying heuristics, rules of thumb, or thinking shortcuts. Be aware of your own thinking shortcuts and when they can lead to problems. Reducing informational load is useful in some situations; however, in others, it may cause errors (e.g., important information could receive too little weight or the judgments may be seriously biased).

The following suggestions may help you complete Step 4:

- Refer to Appendix H to keep track of information that supports or refutes your hypotheses.
- Create fault trees to account for missing information (See Figure 5-2).
- To improve your memory:
  - Take notes as information is collected.
  - Devise a strategy to organize incoming information.
  - Periodically review the initial intelligence survey.
- Frequently consult the steps of the analytic method and lists of available information sources to facilitate information collection and reduce forgetting of sources.
- Have an understanding of several kinds of decision rules and strategies. (See Appendix E, Sections 2.4 and 2.5.)

5.3.5 *STEP 5: PREPARE A REVISED INTELLIGENCE SURVEY*

The revised intelligence survey takes the place of the initial survey and is the precursor to the final product that will answer the consumer's requirements. It should, therefore, be as well organized and as unbiased as the initial survey. It should reflect the validity of the information used in its revision, and should address all of the information requested by the consumer.

If the revised intelligence survey is inconsistent with the consumer's requirement, you may have been lax in the performance of a previous step. If, however, the revised survey simply contains too little information to satisfy the consumer's requirements, you should again identify missing information, establish an analytic method, execute this new method, and develop another revised intelligence survey.

HOW TO DEVELOP A FAULT TREE

A fault tree is an outline indicating all preliminary events that may have contributed to an outcome event. To construct a fault tree:

1. Enter the outcome event at the top of the tree.
2. List all preliminary events and actions that could have caused the outcome. Enter them as branches extending down from the top.
3. List several causal factors under each preliminary event.
4. Use information concerning the probability of occurrence for each of these causal factors to help you evaluate the importance of each preliminary event in causing the outcome event.

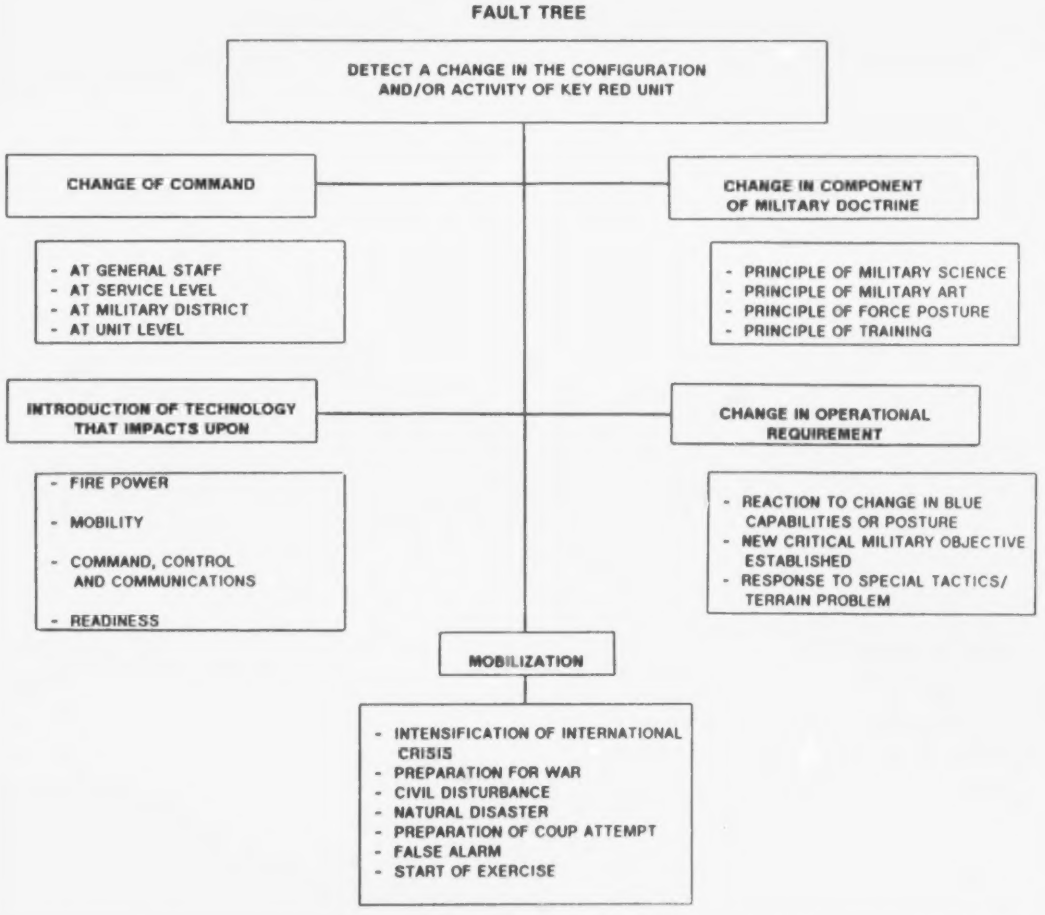

FAULT TREE
DETECT A CHANGE IN THE CONFIGURATION AND/OR ACTIVITY OF KEY RED UNIT
CHANGE OF COMMAND
- AT GENERAL STAFF
- AT SERVICE LEVEL
- AT MILITARY DISTRICT
- AT UNIT LEVEL
CHANGE IN COMPONENT OF MILITARY DOCTRINE
- PRINCIPLE OF MILITARY SCIENCE
- PRINCIPLE OF MILITARY ART
- PRINCIPLE OF FORCE POSTURE
- PRINCIPLE OF TRAINING
INTRODUCTION OF TECHNOLOGY THAT IMPACTS UPON
- FIRE POWER
- MOBILITY
- COMMAND, CONTROL AND COMMUNICATIONS
- READINESS
CHANGE IN OPERATIONAL REQUIREMENT
- REACTION TO CHANGE IN BLUE CAPABILITIES OR POSTURE
- NEW CRITICAL MILITARY OBJECTIVE ESTABLISHED
- RESPONSE TO SPECIAL TACTICS/ TERRAIN PROBLEM
MOBILIZATION
- INTENSIFICATION OF INTERNATIONAL CRISIS
- PREPARATION FOR WAR
- CIVIL DISTURBANCE
- NATURAL DISASTER
- PREPARATION OF COUP ATTEMPT
- FALSE ALARM
- START OF EXERCISE

Figure 5-2: How to Create a Fault Tree.

This process continues within the production constraints until the consumer's requirements are met or until you have exhausted all the available information.

THE IDEAL PRODUCT:
• References the requirement statement.
• Defines the baseline against which new information is applied.
• Defines the geographic, geopolitical, and ethnographic area within which the threat exists.
• Establishes the time frame within which any predictions remain valid.
• Provides the level of detail, accuracy, format, and supporting information required by the consumer.
• Identifies areas of uncertainty and an evaluation of the resources that went into the analysis.
• Places most important information first.

Table 5-12: Ideal Product Checklist

5.3.5.1 Procedures/Tools for Step 5

Compare your revised survey with the Ideal Product Checklist (see Table 5-12) and against the consumer's requirements, previously documented in your product folder.

Use statistical methods to facilitate integration of multiple, independent pieces of information (see Appendix G references).

Use numerical indications of uncertainty in the revised survey (see Appendix E, Section 2.4).

Document the intelligence survey in your product folder.

5.3.5.2 Potential Difficulties/ Suggestions for Step 5

See Step 2, "Establish an Initial Intelligence Survey."

5.3.6 STEP 6: PRODUCE A REPORT OF THE PRODUCTION RESULTS

The production report is likely to be the only exposure that the consumer will have to your skill and ability as an analyst. This report should contain as accurate an answer to the consumer's request for intelligence as possible.

Being right in estimating an outcome is irrelevant if the consumer cannot use the information provided in the product. It is not enough that the report simply contain the requested intelligence. In both verbal and written reports, this information must be presented in such a way that it easily translates into the consumer's own understanding of the topic. The consumer should not have to search for essential or critical information amidst a profusion of irrelevant detail, but should be able to follow the logic and reasoning behind your conclusions and correctly understand the magnitude of uncertainty in the analysis. The consumer should not be distracted by incorrect grammar and spelling.

Lack of attention to any of the above can seriously detract from the quality and usefulness of the intelligence product.

5.3.6.1 *Procedures/Tools for Step 6*

Include in your report hard facts and an interpretation of what these facts imply. Indicate what is known as well as what is not known.

Whenever possible, document any prior assumptions you may hold that have influenced your analysis. (See Appendix E, Section 2.1.) A good rule of thumb is to address these assumptions whenever the product exceeds two or three pages.

Indicate the reliability of the information in the report using numerical estimates.

Be selective; do not include unnecessary detail. Elicit feedback from the consumer to determine whether your report is adequate.

5.3.6.2 *Potential Difficulties/Suggestions for Step 6*

Poor writing and verbal skills can seriously damage your ability to communicate the results of a brilliant analysis. You should learn how to present your ideas clearly and in a straightforward manner. Make certain that you:

- Use your technical journal to help you remember pertinent information.
- Present your ideas using a well-organized, conversational style. Use lists sparingly.
- Follow all organizational and formatting procedures where required.
- Use the ITAC Writer's Guide to determine correct grammatical rules for written reports.
- Use a dictionary to check pronunciation, word meaning, and spelling.
- Proofread.

5.3.7 *SUMMARY*

This general approach for conducting strategic intelligence analysis has a great deal of flexibility. Entire steps or individual procedures within a step can be eliminated in certain situations. As you gain experience in analysis, you will know when you can eliminate steps and procedures without detracting from the final product. Until you reach this point, you will increase your chances of creating a successful final product by following the systematic approach outlined in this chapter.

6. TRAINING TO BECOME AN ITAC STRATEGIC ANALYST

6.1 Introduction

As a newcomer to ITAC you must to establish a plan that will guide you in your efforts to become a first-rate strategic analyst. Such a plan should include a set of personal and professional objectives and the means by which to achieve them. The purpose of this chapter is to underscore the importance of training as a major component of this plan. The following discussion addresses the role of training and education for both new and experienced strategic analysts. You must remember that "expertise" is something that is achieved through hard work and interaction with your peers. Expertise is also something that must be continually refined and maintained. In addition to the discussions below, Appendix I contains a list of many local area courses relevant to strategic analysis. We recommend that you set some time aside to review this material.

6.2 ITAC and the Well Trained Analyst

ITAC has two primary goals:

- To effectively respond to the needs of its intelligence consumers.
- To be "first in intelligence".

As discussed in Chapter 4, responsiveness to consumer requirements means reducing the uncertainties that may surround a particular system, issue or problem. By removing uncertainty, Army planners and senior decision makers are able to develop and implement the kinds of plans and policies that will most effectively counter future threats to the Army. The second goal is closely related to the first. By becoming a high quality, fully responsive intelligence producing organization, ITAC will achieve its goal of "first in intelligence". Commitment, capability, and continued training are keys to becoming a top notch strategic analyst.

6.2.1 COMMITMENT

Whether ITAC is able to reach its goals depends to a great extent upon the commitment and capability of you and your fellow ITAC analysts. Commitment to your job, your career and to the goals of ITAC is something that can only come from within. While personal commitment can never be measured, it is something that stands out and is recognized in an individual and an organization such as ITAC. Commitment to producing intelligence of the highest quality possible is what distinguishes the high performance organization from the ordinary office.

6.2.2 CAPABILITY

Commitment and dedication also extends to the need to continually improve your own analytic capabilities and areas of expertise. While you have been selected to join ITAC on the basis of your present talents and capabilities, your selection was also based upon a belief in your potential to become a superior strategic analyst. It is important that you realize that your training and education have just begun. To become, and then continue to be, an analyst who excels in the production of strategic intelligence, you must (1) participate in the ITAC training and orientation programs, and (2) seek out those colleagues, courses, and sources of information that will enhance your ability to perform *analytically*.

6.2.3 RETRAINING

Finished intelligence, other analysts, open sources, and automated data bases are important resources for the strategic analyst. However, your most important resource for analysis will be your own mind. To avoid becoming stale and less effective you must make a concerted effort to continually train and re-educate yourself. By reinforcing existing knowledge and constantly adding to it, your areas of expertise will expand. This will be reflected in the quality of your work, and it will also increase your value to ITAC and the national intelligence community as a whole.

ASDIA
COINS
DIOLOGUE
DIAOLS
IRISA
ORBIT
NEXIS

Table 6-2: Information Data Bases at ITAC.

6.3 Exploitation of Library Resources

In addition to participating in ITAC and community training programs, you should also set aside a particular time during the week to review materials in the ITAC library. The library is a most valuable resource for the strategic analyst. In addition to allowing you to keep abreast of new ideas and innovations in your area of expertise frequent use of the library resources will enhance your professional development and complement any plan you may have for advancement.

Adelphi Papers
Africa Confidential
Air Force Magazine
American Political Science Review
Army
Army Times
Aviation Week and Space Technology
Astronautics and Aeronautics
Businessweek
Chemical and Engineering News
Computer Decisions
Defense Electronics
Field Artillery Journal
Foreign Affairs
Infantry
Janes
Journal of Guidance and Control
Journal of Operational Research
Latin American Studies
Military Engineer
Military Review
Military Technology
NATO Review
Orbis
Political Methodology
Scientific American
SIGNAL
Soviet Analyst
Soviet Military Review
Strategic Review
Technology Review
Terrorism
USSR Facts and Figures Annual

Table 6-2: Sample of Periodicals at the TIF

ITAC's Technical Information Center (TIF) holds approximately 35,000 volumes of community intelligence, and technical, geopolitical, and general reference material at all levels of classification. Substantial information is available on microfiche readers and data base retrieval systems (see Table 6-1). Other information resources that are available through the TIF include journals, intelligence reports, new

books, magazines, and newspapers. A list of many of the most useful periodicals available at TIF is presented in Table 6-2. For those sources of information that are not readily accessible at ITAC, the TIF has an interlibrary loan arrangement with other community libraries.

As a new ITAC analyst, it is recommended that you become familiar with the materials offered at the TIF and establish a regular reading list to begin your professional development.

6.4 Academic Training and the Strategic Analyst

ITAC analysts deal primarily with problems of a technical nature that require an understanding of military environments, military organization, and the principles of warfare. You were chosen to become an ITAC analyst because of your previous experience in these areas, or because of other criteria that convinced us that you will be able to acquire this knowledge in a short time.

New analysts are typically not familiar with the ways in which nations train, organize, and employ their armed forces capabilities. Analysts must learn to "think red"; they must become experts on the enemy.

One way to acquire the background and education needed to become an expert on the enemy is by taking courses in the local academic institutions. The Washington, D.C. area has a number of universities that have extensive programs in international relations, area studies, and national security affairs. In addition, the Defense Intelligence College (DIC) offers a masters degree in strategic intelligence. Whether or not you work toward a degree, you are strongly encouraged to look into the DIC programs. Other U.S. Government affiliated institutions that offer training relevant to strategic analysis are the State Department's Foreign Service Institute (FSI) and the CIA Office of Training. Like the DIC, these too are highly recommended.

BIBLIOGRAPHY

Introduction

The literature on strategic analysis is rich and extensive. It is important that you become familiar with these writings that address strategic issues of most relevance to your job. This bibliography will introduce you to a cross-section of writings on strategic affairs. Many of these works were used in the preparation of this handbook. Others are listed because of their particular insight or treatment of topics.

- - -

Ackoff, R. L.
The Art of Problem Solving. John Wiley & Sons, New York, 1978.

Adams, James L.
Conceptual Blockbusting. W. H. Freeman and Company, San Francisco, 1974.

Alexander, Yonah.
Behavior and Quantitative Perspectives on Terrorism. New York, Pergamon Press, 1981.

Alexander, Yonah, ed.
Terrorism: Interdisciplinary Perspectives. New York: John Jay, 1977.

Allison, Graham T.
Essence of Decision: Explaining the Cuban Missile Crisis. Little, Brown, Boston, 1971.

Axelrod, Robert (ed.)
Structure of Decision: The Cognitive Maps of Political Elites. Princeton University Press, Princeton, N.J., 1976.

Baxter, William P.
"What Ivan Knows About Us."
Army, 1980.

Betts, Richard D.
"Analysis, War, and Decision: Why Intelligence Failures Are Inevitable."
World Politics. Vol. 31, No. 1, October 1978.

Buynoski, Mathew S.
Decision Analysis for Wargamers: Parts I & II. The General - Part 1: Vol 8, No. 4. Part 2: Vol. 8, No. 5.

Chan, Steve
"The Intelligence of Stupidity: Understanding Failures in Strategic Warning."
American Political Science Review, Vol. 73, 1979.

Clarkson, Albert
Toward Effective Strategic Analysis: New Applications of Information Technology. Boulder, Colorado, Westview Press, 1981.

Clauser, Jerome K., & Weir, Sandra M.
"Intelligence Research Methodology: An Introduction to Techniques and Procedures for Conducting Research in Defense Intelligence." Prepared for the Defense Intelligence School, Washington, D.C., 1975.

Clausewitz, Carl Von
On War. (Edited and translated by Michael Howard and Peter Paret), Princeton University Press, Princeton, N.J., 1976.

Colby, William E.
"Intelligence in the 1980's."
The Information Society, Vol. 1, Number 1, 1981.

Dulles, Allan
The Craft of Intelligence. New

York, Harper and Row, 1963.

Enzer, Selwyn
"Cross-Impact Techniques in Technology Assessment."
Futures, March 1972, pp. 30-51.

Fain, Plant, Molloy, & Ross (Eds.)
The Intelligence Community: History, Organization and Issues. R. R. Bowker Co., New York, 1977.

Gardner, Martin
AHA! Insight. Scientific American, Inc., W. H. Freeman and Company, New York, 1978.

Godson, Roy (ed.).
Intelligence Requirements for the 1980's: Analyses and Estimates." National Strategy Information Center, New Brunswick, 1980.

Goure, Leon
"War Survival in Soviet Strategy." Center for Advanced International Studies, Miami, 1976.

Graham, Daniel O.
"Strategic Intelligence: Estimating the Threat: A Soldiers Job."
Army, Vol. 23, No. 4, April 1973.

Heuer, Richards J.
Cognitive Biases: Problems in Hindsight Analysis.
Studies in Intelligence, Summer, 1978.

Heuer, Richards J., Jr.
"A Problem Solving Perspective on the Role of Methodology in Government Foreign Affairs Analysis", Paper presented to 19th annual convention of the International Studies Association, Washington, D.C., February 22-25, 1978.

Heuer, Richard J.
"Improving Intelligence Analysis: Some Insights on Data, Concepts, and Management in the Intelligence Community,"
The Bureaucrat, Winter 1979-80.

Heuer, Richards J.(Ed).
Quantitative Approaches to Political Intelligence: The CIA Experience. Westview Press, Boulder, Colorado, 1978.

Hillier, Frederick S. & Liberman, G. J.
Operations Research. Holden-Day, Inc., San Francisco, 1974.

Janis, Irving L.
Victims of Groupthink: A Psychological Study of Foreign Policy Decisions and Fiascoes. Houghton-Mifflin, Boston, 1972.

Jervis, Robert
Perception and Misperception in International Affairs. Princeton University Press, Princeton, N.J., 1976.

Katter, R. V., Montgomery, C.A., and Thompson, J.R.
"Human Processes in Intelligence Analysis: Phase I Overview." Human Factors Technical Area, ARI Office of Deputy Chief of Staff, Systems, INSCOM, Research Report 1237.

Keeney, Ralph L. and Raiffa, H.
Decisions with Multiple Objectives: Preferences and Value Tradeoffs. John Wiley and Sons, New York, 1976.

Koberg, Don and Bagnall, J.
The Universal Traveler. William Kaufmann, Inc., Los Altos, 1976.

Kinter, W. R., and Scott, H.F.
The Nuclear Revolution in Soviet Military Affairs. University of Oklahoma Press, Norman, 1968.

Kupperman, Robert H. and Trent, Darrell M. *Terrorism: Threat, Reality, Response.* Stanford, California, Hoover Institution, 1979.

Legvold, Robert
"The Nature of Soviet Power." *Foreign Affairs*, Vol. 56, No. 1, October, 1977.

Luttwak, Edward N.
The Grand Strategy of the Roman Empire: from the first century A.D. to the third. The John Hopkins University Press, Baltimore, MD, 1976.

Machiavelli, Niccolo
The Prince, (Translated by Peter Rodd.) Henry Regnery, Chicago, 1955.

Martino, Joseph P.
Technological Forecasting for Decision Making. American Elsevier Publishing Company, Inc., New York, 1972.

Mishkin, Andrew H.
"The Analytic Hierarchy Process as a Heuristic in Problem Representation." Master's thesis, University of California at Los Angeles; School of Engineering and Applied Sciences, December, 1982.

Orgarkov, Nikolay V.
Always In Readiness to Defend the Homeland. U.S. Government Translation JPRS L/10412, 25 March 1982.

Pipes, Richard
"Why The Soviet Union Thinks It Could Fight And Win A Nuclear War."
Commentary. Vol. 64, No. 1, July 1977.

Prados, John
The Soviet Estimate: U.S. Intelligence Analysis and Russian Military Strength. The Dial Press, New York, 1982.

Raiffa, H.
Decision Analysis. Addison-Wesley Publishing Company, Reading Massachusetts, 1968.

Roberts, Fred S.
Discrete Mathematical Models. Prentice-Hall, Inc., Englewood Cliffs, N.J., 1976.

Rubinstein, M. F.
Patterns of Problem Solving. Prentice-Hall, Inc., Englewood Cliffs, N.J., 1975.

Rubinstein, M. F. and Pfeiffer, K.
Concepts In Problem Solving. Prentice-Hall, Inc., Englewood Cliffs, N.J., 1980.

Saaty, T. L.
The Analytic Hierarchy Process. McGraw-Hill, New York, 1980.

Saaty, Thomas L.
Decision Making for Leaders. Lifetime Learning Publications, Belmont, California, 1982.

Saaty, Thomas L., Vargas, L. G., & Barzilay, A.
"High-Level Decisions: A Lesson From the Iran Hostage Rescue Operation."
Decision Sciences, Vol. 13, No. 2, April, 1982.

Scott, Harriet, and William
The Soviet Art of War: Doctrine, Strategy, and Tactics. Westview Press, Boulder, Colorado, 1982.

Scott, Harriet, & William.
The Armed Forces of the USSR. Westview Press, Boulder,

Colorado, 1981.

Sokolovski, Marshal V.D.
Military Strategy. (Translated by Harriet Scott), Crane Russak, New York, 1975.

Soviet Military Thought Series. Vols. 1 - 15, (Translated under the auspices of the U.S. Air Force), U.S. Government Printing Office Washington, D.C.

Sterling, Clair.
The Terror Network: The Secret War of International Terrorism. Holt, Rinehart, and Winston, New York, 1981.

Stover, John G., and Gordon, T. J.
"Cross-Impact Analysis," in: *Handbook of Futures Research,* Fowles, J. (Ed.), Westport, Conn., 1978, pp. 301-328.

Strauch, Ralph E.
"A Critical Assessment of Quantitative Methodology as a Policy Analysis Tool." R-1423-PR/ARPA, The Rand Corporation, Santa Monica, CA, 1979.

Summers, Harry G.
On Strategy: A Critical Analysis of the Vietnam War. Presidio Press, Novato, CA, 1982.

U.S. Congress Senate Judiciary Committee. *Terrorism: Origins, Direction and Support.* Hearings, 97th Congress, 1st Session, 1981.

Vangundy, Arthur B.
Techniques of Structured Problem Solving. Van Nostrand Reinhold Company, New York, 1981.

Whiting, Kenneth R.
The Development of the Soviet Armed Forces 1917-1977. Air University, Maxwell AFB, Alabama, 1977.

Whiting, Kenneth R.
Readings in Soviet Military Theory. Air University, Maxwell AFB, Alabama, 1952.

APPENDIX A

ITAC Configuration and Directorate Responsibilities

APPENDIX A.

ITAC CONFIGURATION AND DIRECTORATE RESPONSIBILITIES

1. Purpose

You can expect to experience a brief period of adjustment while you get used to your new job, colleagues and work environment. One of the first questions that may come to mind will concern the way in which ITAC is organized and the responsibilities of the major organizational components. The purpose of this appendix is to provide you with an overview of ITAC that will help answer these kinds of questions.

2. Introduction

ITAC's mission is to support Department of Army planning and decision-making with all-source intelligence products. Although ITAC is a major subordinate command of INSCOM, ITAC is subject to the tasking authority of OACSI which validates all requirements sent to ITAC. The current ITAC configuration was established in 1982 and was designed to maximize the responsiveness to the needs of consumers of ITAC products. This organizational framework is represented in Figure A-1. You will notice that ITAC is made up of five main directorates, each of which report directly to the commander. Using this figure, you should be able to locate the division that you have been assigned to and thereby establish an idea of its official relationship to other ITAC divisions and directorates. The functions and structure of the Commander of ITAC together with each of the five Directorates will be addressed in the discussion that follows.

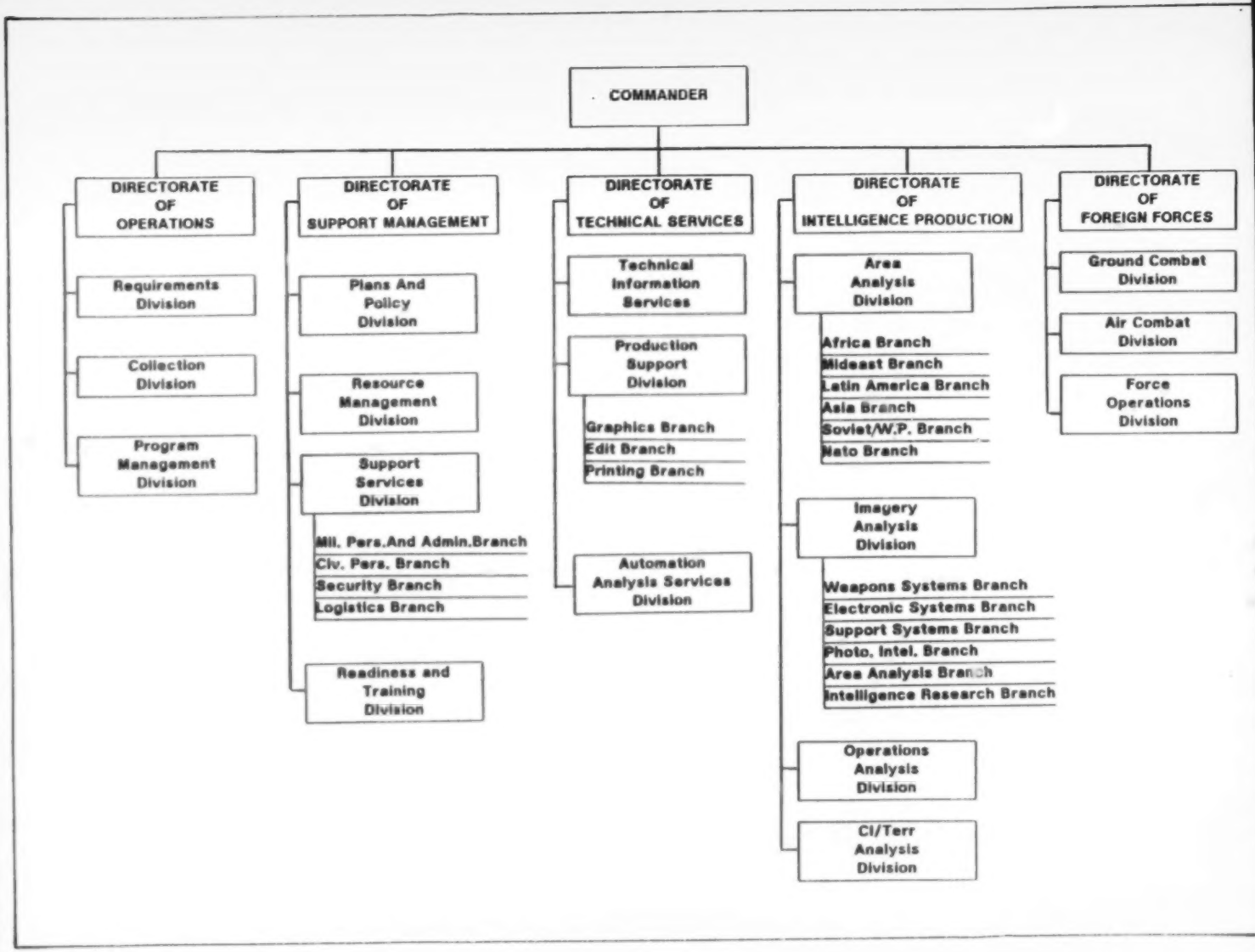


Figure A-1: ITAC Organizational Configuration

BEST COPY AVAILABLE

3. The Functions and Structure of ITAC's Primary Organizational Components

3.1 Commander

3.1.1 FUNCTIONS

The Commander is responsible for managing assigned assets for the successful accomplishment of the ITAC mission. The commander serves as the highest authority on all matters involving general intelligence production and threat analysis. In addition, the Commander directs the preparation of all ITAC's plans, programs, policies, procedures, and intelligence products. The Commander also develops proposed tasking and integrates the activities of other agencies in support of ITAC mission requirements.

3.1.2 STRUCTURE

The office of the Commander is organized according to the operational style and preferences of the Commander of ITAC.

3.2 Foreign Forces Capabilities Directorate

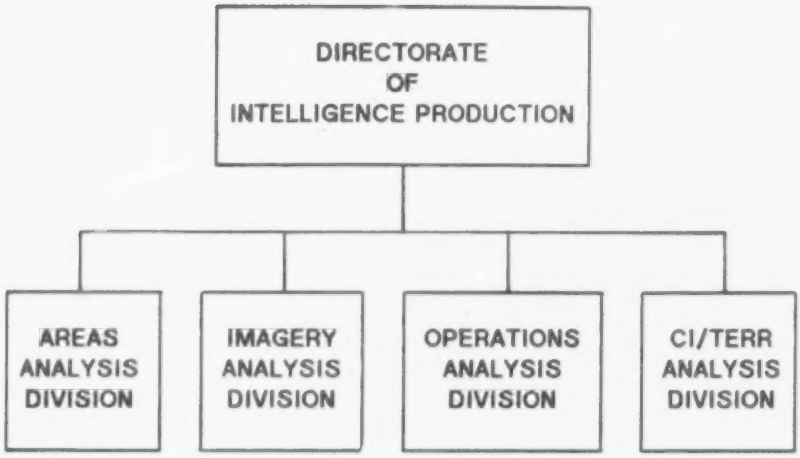
3.2.1 FUNCTIONS

The Foreign Forces Capabilities Directorate (FCD) is primarily responsible for conducting research, analysis, and production on Soviet/WP forces, tactics, operations, organization, and materiel. FCD tailors products and briefings in response to ACSI requirements to support the Army force, concepts, doctrine, combat, and materiel developers (HQDA, TRADOC, DARCOM) who are required by regulation to account for the threat as they build the U.S. Army of the future.

In peacetime the FCD concentrates on mid- and long-range projections of Soviet/WP forces; generally at a level of theater and below. In wartime, the directorate shifts its emphasis to short- and mid-term projections in order to anticipate battlefield tactical and materiel developments that can adversely affect U.S. and allied forces. During peace or war, the FCD also serves as a CONUS (Continental United States) interface for Army intelligence production between echelons below corps, DOD, and national agencies.

3.2.2 STRUCTURE

The Forces Capabilities Directorate is organized into three functionally integrated divisions. As projects are assigned, the divisions form teams of combat or mission area functions and families of systems (i.e. Armor, Artillery, Logistics teams, etc.). The teams are grouped under Ground Combat, Air Combat, and Force Operations Divisions and coordinate directly with their counterparts at the DA staff and major commands including their schools, centers, and subcommands systems. Analysts with modeling and wargaming skills are assigned to the FCD to support analysis.



3.3 Intelligence Production Directorate

3.3.1 FUNCTIONS

In response to ACSI requirements and in support of U.S. Army planners and senior decision-makers, the Intelligence Production Directorate (IPD) provides:

- Regional military estimates, scenarios, and assessments.
- Analyses of conduct, exercises, and training.
- Vulnerability/susceptibility assessments.
- SIGINT exploitation.
- Imagery analyses.
- Counterintelligence analyses.

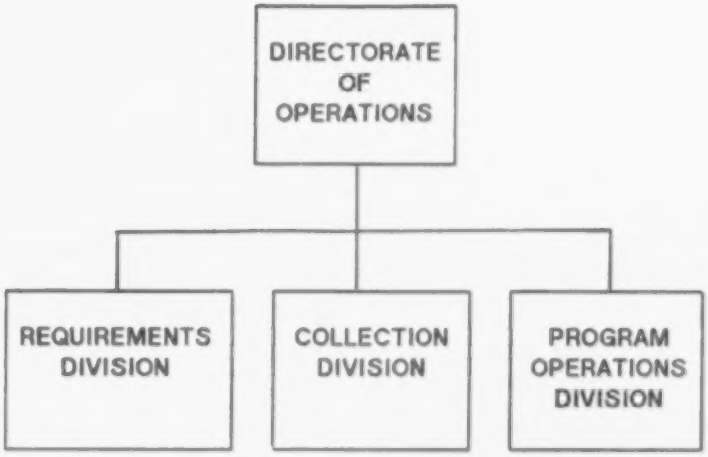
The IPD also tasks and organizes for specific projects as required, by assembling all-source expertise from among its divisions.

In peacetime the IPD produces studies and briefings to prepare the CONUS sustaining base and echelons above corps for war. This involves a multitude of activities to satisfy such mission area requirements as situation development, targeting, and critical indicator identification, counterintelligence and support to OPSEC, and national and departmental interface.

In wartime the Directorate determines, detects, and reports critical indicators of enemy deep rear area activity, and provides short-term reports and assessments in response to wartime intelligence requirements from echelon above corps and sustaining base. In addition, it receives data from all sources in theaters of war for purposes of supporting the Department of Army with worldwide intelligence assessments and appraisals.

3.3.2 STRUCTURE

The IPD is structured along both geographic and intelligence discipline lines and in time of war, or threat of war, is capable of rapid augmentation by in-house and U.S. Army Reserve Components in accordance with analytic expertise requirements. The IPD includes an Area Division consisting of regional branches, and Imagery Intelligence, Exercise Analysis and Counterintelligence/ Terrorism Analysis. In peace and war, IPD is capable of applying all source analysis to regional area(s) of high national interest.



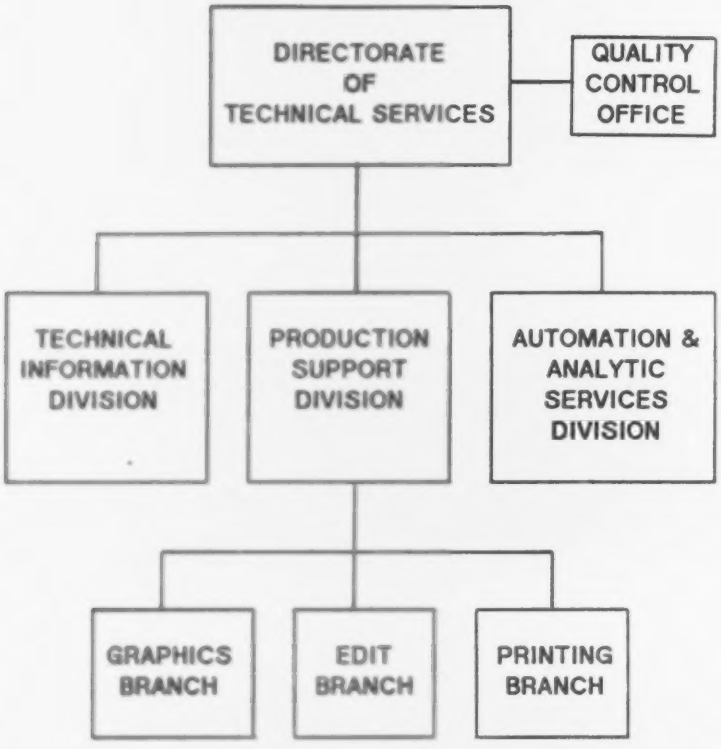
3.4 Operations Directorate

3.4.1 FUNCTIONS

The Director of Operations (DO) serves as the operations officer for ITAC. The DO is responsible for processing requirements, providing collection management, and maintaining required schedules and statistics for ITAC projects and products. All requirements are received by the directorate, analyzed to determine their validity and then either returned to the requester or tasked to the appropriate directorate.

3.4.2 STRUCTURE

The DO is organized into small divisions that accomplish the functions of requirements analysis and processing, collection support, and scheduling.



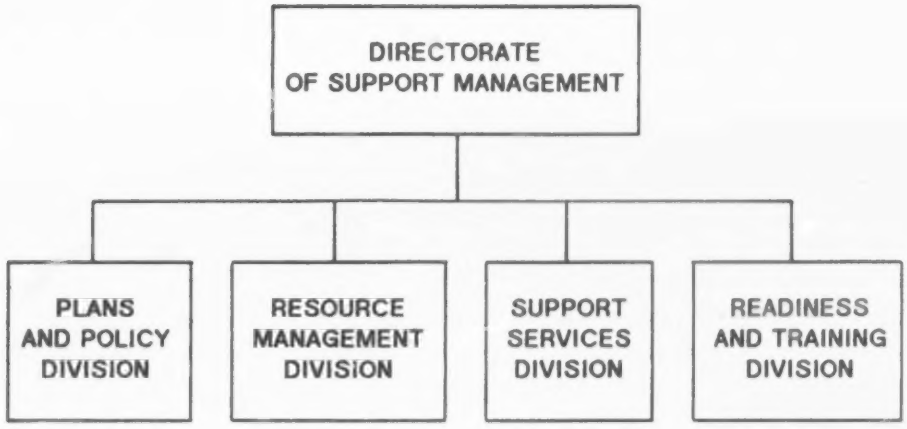
3.5 Technical Services Directorate

3.5.1 *FUNCTIONS*

The Technical Services Directorate (TSD) provides a variety of support functions for the Command, particularly the analytical directorates. This includes all manner of library/ reference center assistance, one-stop graphics, printing, quality control, and automated support. The TSD is responsible for the technical modernization of the organization. A primary task of the TSD is to minimize the administrative burdens on the analytical divisions, which in turn are required to establish and accomplish their own high standards of quality control for each product and project prior to forwarding it to TSD.

3.5.2 *STRUCTURE*

The TSD consists of a Technical Information Division, a Production Support Division and a Management Information and Automation Division.



3.6 Support Management Directorate

3.6.1 *FUNCTION*

The Support Management Directorate (SMD) is responsible for all the planning, programming, budgeting, training, manpower management and personnel activities, logistics and security for ITAC. The Plans and Policies Division prepares all short-, mid-, and long-term plans with input from all Directorates. The Resource Management Division is responsible for GDIP preparation, and management of the command operating budget. Budgets and TDS's are based on long-range plans and policies.

3.6.2 *STRUCTURE*

The SMD is organized into divisions required to accomplish its missions of plans and policy, program and budget, supply, manpower management, personnel, training, and readiness.

4. Conclusion

The organization of ITAC is noteworthy for its horizontal structure and flexible character. This allows ITAC to respond to multiple and varying mission area requirements in peace and war.

The management is lean, and priority for spaces is given to analysts and their support staff for production.

The operations of ITAC depend greatly upon the team approach by organizing tasks to accomplish projects. There is special emphasis on orienting ITAC teams on specific Army organizations and projects, thereby insuring that intelligence and threat factors are adequately taken into account as the Army builds and prepares for tomorrow.

APPENDIX B

ITAC Task Organization

APPENDIX B.

ITAC TASK ORGANIZATION

1. Introduction

Prior to the most recent reconfiguration, individual ITAC production divisions specialized in specific functional areas and served a narrow range of clients. As semi-autonomous intelligence producers, there was little coordination either within or between directorates. Consistent with guidance provided by the ACSI and CG INSCOM in 1982, ITAC production currently seeks to employ the expertise within all of ITAC, to produce truly all-source intelligence reports and studies. As a result, ITAC divisions now interact as a team in the production of strategic intelligence.

2. Concept of Operations

Since the establishment of the present ITAC configuration, intelligence production has shifted toward a total integration of ITAC production, and away from many of the traditional ways of producing analyses.

Figure B-1 represents the way in which fully integrated, all-source ITAC production is accomplished. A major feature of this concept is that each analyst can obtain support from all necessary analytical and support experts throughout ITAC. Precise scoping and tasking of requirements by the Director of Operations (DO) and close coordination of Directors, Division Chiefs, and Branch Chiefs is a central feature of this concept.

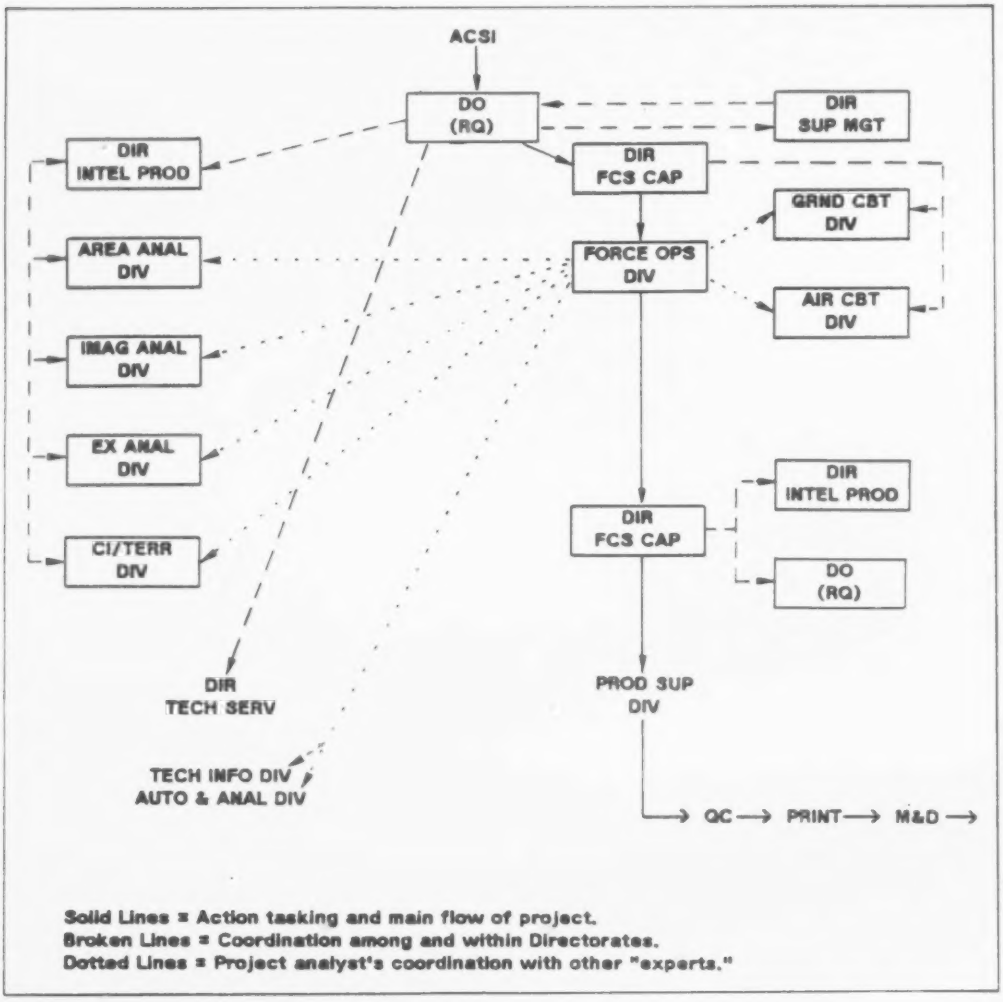


Figure B-1: Example of All-Source Product Flow

APPENDIX C

ITAC Products and Clients

APPENDIX C.

ITAC PRODUCTS AND CLIENTS

1.0 Introduction

ITAC is charged with executing intelligence production functions to include strategic overviews, general intelligence threat analysis, and tactical technical intelligence. This effort directly supports the following four categories of consumers:

- Senior decision-makers and planners at DA and national level.
- Operational forces - both tactical and special purpose.
- Force, combat, and materiel developers - to include the training community.
- Scientific and technical intelligence communities.

The kinds of ITAC products that support each of these consumer categories are represented in Figures C-1 and C-2.

2.0 Support to Senior Decision Makers

Support to senior Army decision-makers is an exciting and rapidly expanding area within ITAC's overall intelligence analysis and production responsibilities.

ITAC has stipulated that requirements originating from elements of the Army Staff such as the ACSI and the Deputy Chief of Staff for Operations (DCSOPS) receive highest priority. We anticipate that a growing proportion of the work at ITAC will be in response to requirements of these and other Army Staff requirements. At present, ITAC support at this level consists of two types of products: (a) Capstone Studies, and (b) Architecture Studies.

2.1 Capstone Studies

Knowing how to equip, train, and deploy armed forces requires an understanding of the nature and location of potential conflicts and the goals, strategies and capabilities of potential enemies. Such an understanding is particularly crucial for senior decision makers who are responsible for developing and implementing the Army Long-Range Planning System. ITAC supports these decision makers through the production of Capstone Studies that provide a view into potential geographic regions of conflict, and into the types of conditions and threat that the Army may face, should it be deployed into these regions under conflict conditions. ITAC's Capstone Studies are divided into two major categories: Environmental Studies and Strategic Overviews.

2.1.1 Environmental Studies

The most significant environmental study is the Long-Range Planning Estimate (LRPE). This widely respected ITAC product contains analyses of political-military factors and trends out to the year 2000 for Europe, the Middle East and Persian Gulf, Asia and the Pacific, Latin America, and Africa. By addressing who, when, where, and under what conditions the Army may be called upon to fight, senior decision-makers are better able to determine long-range implications and strategic requirements. In addition, ITAC'S environmental studies enable them to develop and prioritize required force capabilities and characteristics.

2.1.2 Strategic Overviews

Like ITAC's environmental studies in general, and the LRPE in particular, strategic overviews provide a perspective of potential conflict situations that

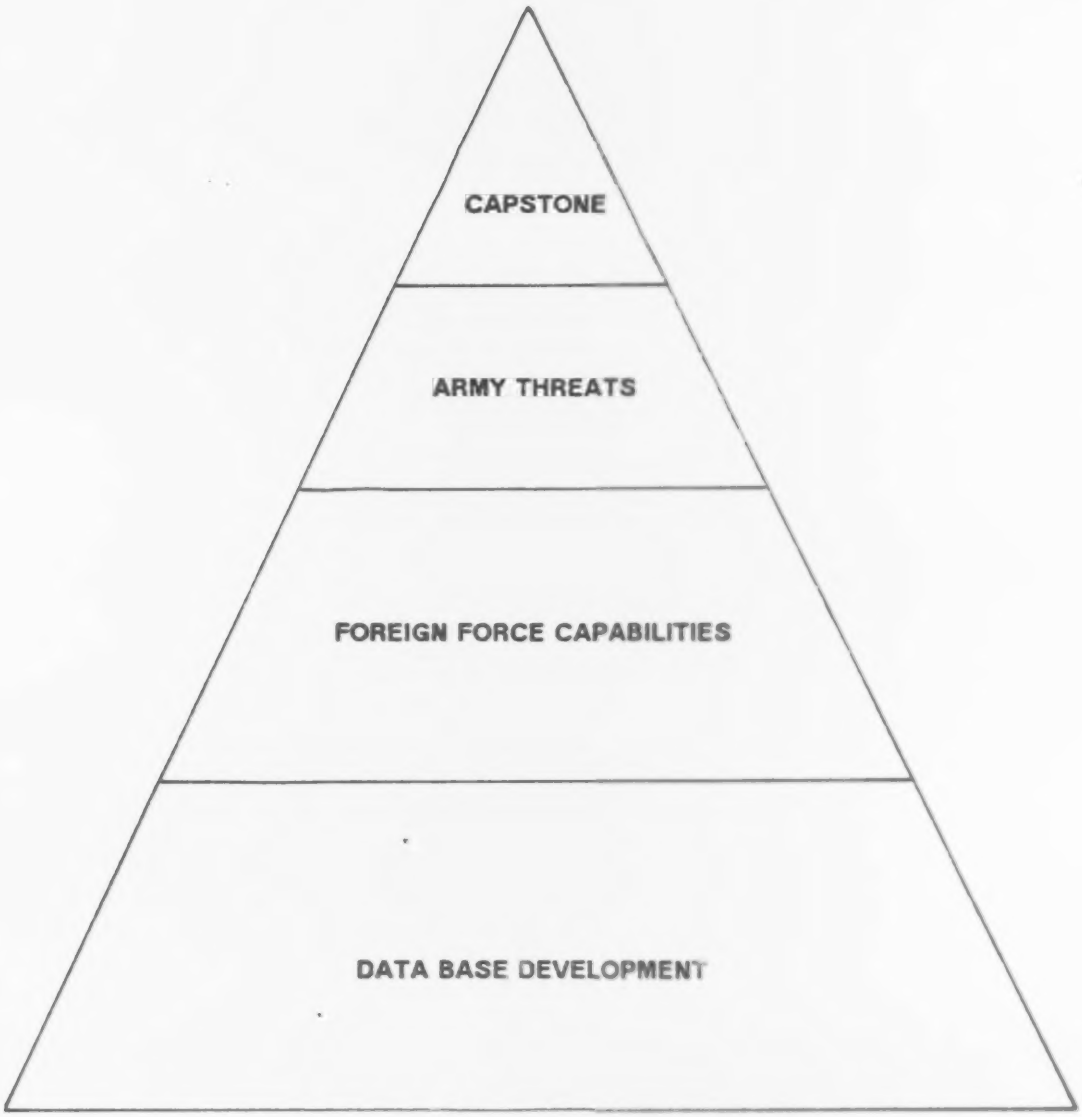


Figure C-1: ITAC Support to Strategic Intelligence Consumers

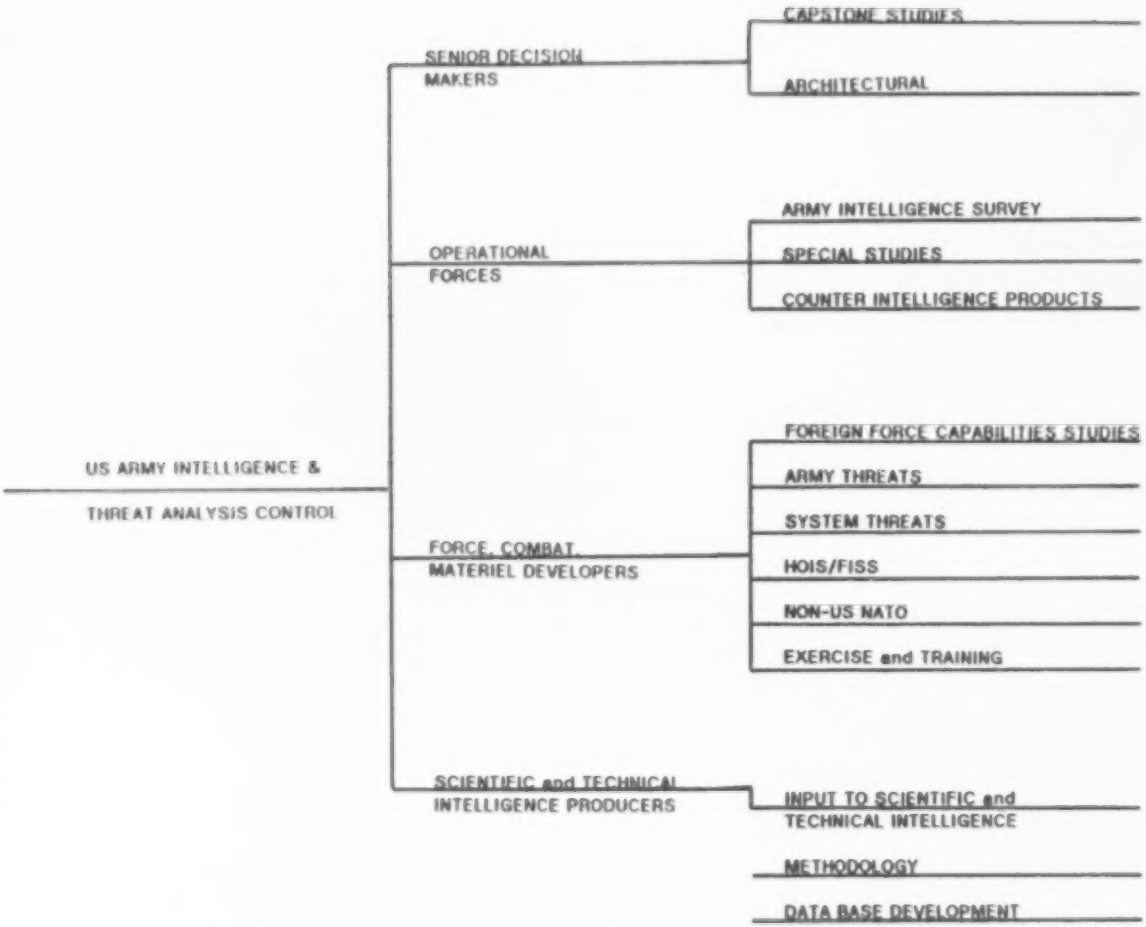


Figure C-2: ITAC Products

BEST COPY AVAILABLE

is much broader than the generic and system threats provided in support of operational forces, combat and materiel developers, and the S+T intelligence producers. The strategic overview must encompass both the environmental trends and potential enemy force capabilities. It must predict enemy behavior, environmental conditions, and the duration of a potential future war.

The most significant of ITAC's Strategic Overviews is the Soviet Battlefield Development Plan (SBDP). The SBDP is an eight volume product that describes the major components of the Soviet war machine for the Year 2000. The SBDP serves as an officially approved base document for analyzing Soviet reaction to new developments in the U.S. Army's means and methods of warfare. Yet the SBDP is much more. It estimates the organization and capabilities of Soviet armed forces and examines the social, political, economic, and ideological foundations of the USSR's military might. These fundamental components provide senior decision makers with a better understanding of both the source of military capabilities and the potentials that exist for the future expansion of these capabilities. The SBDP is divided into the following eight volumes:

Volume 1: Soviet General Doctrine of War.

This volume presents the Marxist-Leninist foundations of Soviet military thought, strategies, and organization.

Volume 2: Preparation of the Rear for General War.

"Rear" in Russian means the entire home front - economy, manpower, morale, etc. Volume 2, therefore, addresses how the home front is organized to support the potential outbreak of war. The emphasis here is on how these efforts enhance the Soviet capability to win on the battlefield in the Year 2000.

Volume 3: Geographic Organization of Military Operational Responsibilities.

This volume presents the command and control apparatus of Soviet military forces. Organized geographically, it is centered in Moscow and radiates out to the areas of influence and interest of major commands. The idea is to present the Soviet counterpart to the U.S. organization of Unified and Specified Commands. Forecasts are made as to the possibility of changes in geographic organizations or emphasis out to the Year 2000.

Volume 4: Soviet Weapons and Systems.

Volume 4 describes Soviet weapons and systems in relation to such factors as size of production facilities, inventories, production rates/capacity, and how all these contribute to the Soviet's ability to fight on today's battlefield. Major emphasis is on weapons developments. Estimates are made as to characteristics of future weapons, the numbers expected, and their impact on the battlefield.

Volume 5: Ground Force Organizations and Operations.

This volume explains the present organization of the Soviet Army, from front forces to battalion-size units, with special focus on the interrelationships among organizations, tactics, and equipment. The primary emphasis is on expected changes to future organizations in such areas as doctrine, strategy, equipment, and tactics. This volume forecasts how Soviet units, from battalions to fronts, will be organized, how they will be equipped, and how they will fight on the battlefield of the Year 2000.

Volume 6: Ground Force OB by Region.

This volume presents the order of battle of the Soviet Army by region, discussing factors of historical differences such as type of organizations, economy,

political alliances, etc.

Volume 7: Exercises and War Plans.

This volume reviews recent Soviet military exercises by geographic areas and points out what these exercises imply about present Soviet war plans. Forecasts of future exercises and war plans are made based on changes expected in Soviet military organizations, equipment strategy, tactics and objectives. Home front exercises are also discussed in areas such as industry, transportation, civil defense, KGB/MVD, emphasizing how these exercises contribute to the effectiveness of Soviet forces on the battlefields of today and tomorrow.

Volume 8: Soviet Military Missions versus Capabilities.

This is probably the most valuable volume of the entire SBDP. It compares the missions of Soviet ground forces with the forces' capabilities to achieve them. A discussion of both Soviet strengths and weaknesses in relation to mission accomplishment is presented. The main emphasis is on forecasts of Soviet abilities to close any existing gaps and prepare for new gaps that may appear between now and the Year 2000.

Like the LRPE, the SBDP is highly respected in the military intelligence community in general and by senior Army decision makers in particular. Like the LRPE, the SBDP has served to considerably enhance ITAC's reputation and prestige.

2.1.3 Architectural Studies

Architectural studies address threats concerning a broad spectrum of capabilities, including multi-system projects, networks, and their associated concepts and doctrine. Examples are threats to the Army Command and Control Master Plan.

3.0 Support to Operational Forces

ITAC provides support to Forces Command (FORSCOM), DA, the Department of Defense (DOD), and other major Army and tactical commands with three basic products: (a) the Army Intelligence Survey (AIS), (b) Special Studies, and (c) Counter-Intelligence Products.

3.1 AIS

The AIS responds to FORSCOM and other major Army and tactical command requirements to support the planning for potential deployment of tactical forces overseas. The AIS supports the Rapid Deployment Joint Task Force (RDJTF), and focuses on Africa, Latin America, and the Persian Gulf. The AIS consists of six volumes on each country:

Volume 1: Country Resume.

This volume provides an overview of current and historical data on many third world countries and identifies areas of concern to the U.S. military in the event of U.S. involvement. It contains discussions and assessments on physical geography and climate, transportation, telecommunications and electric power, key strategic areas, secondary urban areas, history and culture, population, government, economy, and the Armed Forces.

Volume 2: Military Geography.

Volume 2 addresses specific characteristics and factors of military geography and provides a detailed examination of climate and weather (including effects on tactical operations and a climatic data chart), natural terrain, tactical considerations (key terrain, air/airmobile operations, observation and fire, cover and concealment, obstacle, water supply, special operations), transportation, resources, and key industries.

Volume 3, Part 1: Handbook of Ground Forces (HGF).

The HGF provides relatively permanent finished intelligence on the background, structure, and doctrine of the country's ground forces and the identification of the historical characteristics, modern techniques and procedures, constraints and vulnerabilities, abilities, trends, and developments that have combined to produce the present ground forces organization and status. The HGF addresses the impact of history and culture on the ground forces and an assessment of Regular Army including discussion and analysis of mission, composition, disposition, personnel strength, tactics, training, logistics, capabilities, key personalities, uniforms and insignia, weapons and equipment, paramilitary forces, ground forces of other services, and foreign forces stationed in the country.

Volume 3, Part 2: Ground Forces Order of Battle Book (GFOBB).

The GFOBB is designed to supplement and update the HGF and provides more perishable data on trends and developments of the country's ground forces. It will analyze the implementation of doctrine and focus on specific capabilities, weaknesses, and significant developments.

Volume 4: Counter-Intelligence.

This volume addresses the characteristics and environment of counter-intelligence in the country and provides the capabilities of the counter-intelligence organization. It covers internal security, foreign intelligence collection, and military ground forces intelligence.

Volume 5: Medical Intelligence.

(Volume 5 is produced by AFMIC.) This volume provides an analysis of the environment and health factors that would impact on U.S. military operations in that area. The identification of potential and actual health and environmental threats to U.S. forces, and a thorough assessment of available medical intelligence, is of critical importance to U.S. military planners/commanders in the event of U.S. involvement in that country.

Volume 6: Psychological Operations.

(Volume 6 is produced by the 4th Psychological Operations Group.) This volume provides psychological profile information on country military forces, supplying the U.S. military planner/commander with a comprehensive assessment of psychological factors characteristic of the target country, to support U.S. military operations and tactics in psychological operations.

3.2 Special Studies

In response to DA and DOD validated requirements, ITAC produces all-source, single topic, in-depth studies and reports on foreign ground force capabilities. Special Studies are normally short-term, and completed in-house. Special Studies fall into the following geographic areas of interest: Communist countries, Middle East and Persian Gulf, Western Hemisphere (Central America), Africa, Asia, and Western Europe.

3.3 Counter-Intelligence Production

The final category of ITAC product that serves to support the Operational Forces is Counter-Intelligence Production. This series focuses upon the international threats to worldwide U.S. Army interests. Under this category of products, ITAC is responsible for assessing the internal security of countries where the U.S. Army may have to be deployed. ITAC also issues a monthly terrorist summary that is distributed throughout the intelligence and

foreign policy community up to and including the White House.

4.0 Support to Force, Combat, and Materiel Developers

Support to this category of customer constitutes the bulk of ITAC's work. These organizations include the U.S. Army Concepts Analysis Agency (CAA), TRADOC, and DARCOM. ITAC supplies these customers with (a) Generic Threat Analyses, (b) Threat Projection Studies, (c) System Threats, (d) Hostile Intelligence Threat, (e) Non-U.S. NATO Force Projections, and (f) Analyses of Soviet Exercises and Training.

4.1 Army Threat Studies

ITAC's Army Threat products integrate general intelligence and scientific and technical (S+T) intelligence into an assessment (including mid- and long-range projections) of current foreign capabilities, divided into the following functional areas:

- Ground Air Defense
- Artillery (tube and surface-to-surface missile)
- Armor (tank, vehicle and anti-tank)
- EW
- C3
- NBC (nuclear, biological, and chemical)
- Logistics
- Engineer (mine and anti-mine)
- Exotic Weapons (directed energy, parapsychology, and munitions)
- Missiles (strategic and ballistic missile defense)
- Air (tactical and light aviation)
- Infantry (straight infantry and movers, airborne, airmobile, small arms)
- Intelligence (recon, all-source; intelligence, surveillance, and target acquisition)

The generic product is designed to be a basic source document from which pertinent threat data can be drawn by intelligence consumers and producers to support force, combat, and materiel development projects at all levels.

4.2 Threat Projection Studies

Threat Projection Studies are undertaken to build databases in support of Army requirements, particularly in support of the U. S. Army force, combat and materiel developers, and to fill recognized gaps in established databases. These studies provide threat analyses for general army use, such as army planning, doctrine, strategy, operations, and associated material. The projections fall into short (0-2 years), and long-term (10-20 years) analyses. A Threat Projection Study is also undertaken as a result of a future capabilities study effort: Whereas a FCS study seeks to uncover all known information specific to a system or area, a Threat Projection Study gives the consumer an intense, in-depth analysis of a specific subject or problem area not resolved by the generic study, or fills generic database gaps. Projection studies fall into the same general categories as the generic threat described above.

4.3 System Threats

ITAC produces three separate threat documents to support major programs of the materiel systems acquisition process of the Army:

- The Mission Element Need Statement (MENS).
- System Threat Assessment Report (STAR).

- The Integrated Program Summary.

The STAR is supported by STAR appendices in which combat and materiel developers participate with ITAC to prepare the appendices. Descriptions of the System Threat documents are found in Chapter 3 of AR 381-11, 15 August 1981.

4.4 Hostile Intelligence Service/Foreign Intelligence Security Service (HOIS/FISS) Threat

ITAC monitors, analyzes, and evaluates the HOIS collection efforts targeted against the U.S. Army. This includes the Threat against the U.S. Army posed by hostile signal, imagery and traditional human intelligence collection efforts. The production supports the Army's Operations Security (OPSEC) program. The products present those HOIS collection capabilities and activities that Army planners, program managers, and commanders must consider when formulating programs to deny Essential Elements of Friendly Information (EEFI) to hostile collectors.

The FISS Threat is produced in Volume 4 of the Army Intelligence Survey described above, in Periodic Summaries, and in daily specific hostile intelligence threat reports.

4.5 Non-U.S. NATO Production

ITAC produces near-, mid-, and long-term projections of NATO capabilities in support of Army force developers and the Planning Programming and Budgeting System (PPBS). The studies pay particular attention to Non-U.S. NATO logistics capabilities and command, control, and communications.

4.6 Analysis of Soviet Exercises and Training

ITAC examines the application of Soviet tactics, doctrine, operations, and equipment as reflected in foreign exercise activity. Lessons learned from the analysis will be included in studies on this subject.

5.0 Support to Scientific and Technical Intelligence Producers

In response to Army S+T requirements, ITAC produces imagery exploitation reports on foreign ground forces, equipment, and weapons systems. ITAC analysts use imagery to study military units and activities such as exercises, training, and tactics. ITAC analysts also prepare imagery keys to assist community imagery interpreters (ii's) in equipment recognition.

APPENDIX D

ITAC and the National Intelligence Community

APPENDIX D.

ITAC AND THE NATIONAL INTELLIGENCE COMMUNITY

1. Introduction

As a newcomer to ITAC (or even to the intelligence business in general) you may have questions about the functions and responsibilities of individual community members and their relationships to ITAC. To attempt to describe all or even a substantial number of the thousands of individual offices and divisions in the intelligence community would, of course be impossible. The purpose of this appendix, however, is to provide you with some background on some of the community's major actors and a general feel for their areas of responsibility. An abbreviated explanation of the general intelligence production functions of the community is found in Figure D-1. The community itself is represented in Figure D-2. A description of the functions and responsibilities of key components of the intelligence community is provided below.

2. Members of the Intelligence Community

Members of the United States intelligence community include:

- National Security Council
- Director of Central Intelligence
- Central Intelligence Agency (CIA)
- National Security Agency (NSA)
- Defense Intelligence Agency (DIA)
- The Army Intelligence System

2.1 Responsibilities of Intelligence Community Members

2.1.1 The National Security Council

The National Security Council (NSC) was established by the National Security Act of 1947 to advise the President with respect to the integration of domestic, foreign, and military policies relating to the national security. The NSC acts as the highest Executive Branch entity and provides review of, guidance for, and direction to the conduct of all national foreign intelligence and counter-intelligence activities.

2.1.2 The Director of Central Intelligence

The Director of Central Intelligence is directly responsible to the NSC and:

- Acts as the primary adviser to the President and the NSC on national foreign intelligence and provides the President and other officials in the Executive Branch with national foreign intelligence;
- Is head of the CIA and of such staff elements as may be required for discharge of the Director's Intelligence Community responsibilities;
- Develops such objectives and guidance for the Intelligence Community as will enhance capabilities for responding to expected future needs for national foreign intelligence;
- Has authority for the development and prioritization of national intelligence program and budget.

2.1.3 *Central Intelligence Agency (CIA)*

The CIA falls under the direction of the NSC, is responsible for:

- Collecting foreign intelligence, (including information not otherwise obtainable), and developing, conducting, or providing support for technical and other programs that collect national foreign intelligence.
- Producing and disseminating foreign intelligence relating to the national security, including foreign political, economic, scientific, technical, military, geographic and sociological intelligence to meet the needs of the President, the NSC and other elements of the United States Government;
- Conducting and coordinating counter-intelligence activities outside the United States.
- Conducting special activities approved by the President and carrying out such activities consistent with applicable law;

2.1.4 *National Security Agency (NSA)*

The NSA is responsible for the establishment and operation of an effective unified organization for signals intelligence activities. This involves the control, collection, process and dissemination of Signals Information for national intelligence and counter-intelligence purposes.

2.1.5 *Defense Intelligence Agency (DIA)*

The DIA serves as the primary intelligence arm for the Department of Defense. As an ITAC analyst you may expect to have frequent contact with your counterparts at DIA. This key intelligence organization is made up of civilians and elements from each branch of the armed services. Its responsibilities include:

- Production and coordination of military and military-related intelligence for the Secretary of Defense, the Joint Chiefs of Staff, other Defense components, and as appropriate, non-Defense agencies;
- Providing military intelligence for national foreign intelligence products;
- Coordination of all Department of Defense intelligence collection requirements for departmental needs;
- Management of the Defense Attache system; and
- Providing foreign intelligence and counter-intelligence staff support as directed by the Joint Chiefs of Staff.

2.1.6 *The Army Intelligence System*

Army intelligence collection and exploitation capabilities may be tasked by the NTIC, the Department of Defense, Defense Intelligence Agency, the U&W command structure and other military departments.

Within the Department of the Army, (see Figure D-3). the guiding force of Army intelligence is the Assistant chief of Staff Intelligence (ACSI). The ACSI directs the intelligence efforts of the U.S. Army intelligence community. This community includes members with an active intelligence mission, such as the Intelligence Security Command (INSCOM), U.S. Army Europe, and the Forces Command (FORSCOM). Additional members of the community include the U.S. Army Training and Doctrine Command (TRADOC), of which the U.S. Army Intelligence Center and School is a part.

The functions and responsibilities of these and other actors in the Army

intelligence system will be looked at in more detail in the Threat Analyst Training Course. It is important, however, that you familiarize yourself with these organizations in preparation for the level of detail that will be provided later.

2.2 Army Studies and Analysis Community Organizations

In addition to the major actors discussed briefly above, the following organizations are also involved in the production and dissemination of intelligence information:

HQDA

- Office Deputy Under Secretary of the Army (Operations Research)
- Study Management Office, OCSA
- Technical Advisor Office, ODCSOPS
- System Review and Analysis Office, ODCSRDA
- Advisor for Research, Development and Acquisition, ODCSRDA
- Research and Studies Office; Human Analysis Team, ODCSPER.LI Study Management Office, ODCSLOG
- Red Team, OACSI
- Program Analysis and Evaluation, OCSA

SSA/FOA

- Strategic Studies Institute
- Concepts Analysis Agency
- Army Nuclear and Chemical Agency
- Army Research, Development and Acquisition Information System Agency
- Logistics Evaluation Agency
- Army Research Institute
- Military Personnel Center
- Army Recruiting Command
- Engineer Studies Center

Major Commands (MACOMs)

- US Army Europe
- US Army Intelligence and Security Command
- US Army Communications Command
- US Army Forces Command

US Army Training and Doctrine Command (TRADOC)

- DCS, Combat Development--Analysis Directorate
- TRADOC Systems Analysis Activity
- Combined Arms Combat Development Activity
- Logistics Center
- Admin Center

Schools/Centers

- Armor
- Artillery
- Air Defense
- Infantry
- Aviation
- Engineer
- Transportation
- Quartermaster
- Missile and Munitions
- Intelligence
- Signal
- Military Police

- Ordnance and Chemical

US Army Materiel Development and Readiness Command

- Battlefield Systems Integration Directorate
- Systems Analysis Readiness Command
- Armament Materiel Readiness Command
- Communications and Electronics Materiel Readiness Command
- Missile Materiel Readiness Command
- Tank-Automotive Materiel Readiness Command
- Troop Support and Aviation materiel Readiness Command
- Armament Research and Development Command
- Aviation Research and Development Command
- Communications Research and Development Command
- Electronics Research and Development Command and Harry Diamond Laboratories
- Mobility Equipment Research and Development Command
- Missile Research and Development Command
- Natick Research and Development Command
- Tank-Automotive Research and Development Command
- US Army Materiel Systems Analysis Activity
- US Army Management Engineering Training Agency
- Depot System Command
- Inventory Research Office
- Logistics Studies Office
- Logistics Control Activity
- Security Assistance Center
- Procurement Research Office

COMPONENT OF STRATEGIC INTELLIGENCE	PRIMARY RESPONSIBLE AGENCY
BIOGRAPHIC	DIA (MILITARY) CIA (OTHERS)
ECONOMIC	STATE DEPARTMENT (FREE WORLD) CIA (COMMUNIST COUNTRIES)
SOCIOLOGICAL	STATE
TRANSPORTATION/TELLECOMMUNICATIONS	DIA
MILITARY GEOGRAPHIC	DIA IND INDIVIDUAL SERVICE INTELLIGENCE ORGANIZATIONS
ARMED FORCES	DIA AND INDIVIDUAL SERVICE INTELLIGENCE ORGANIZATIONS
POLITICAL	STATE
SCIENTIFIC/TECHNICAL	DIA (AND VARIOUS S&T ORGANIZATIONS OF THE DIFFERENT SERVICES) CIA

Figure D-1. Intelligence Organizations and their Primary Production Responsibility

SECRETARY OF THE ARMY
UNDER SECRETARY OF THE ARMY
CENTRAL COUNSEL
ADMINISTRATIVE ASSISTANT
CHIEF OF LEGISLATIVE LIAISON
CHIEF OF PUBLIC AFFAIRS
DIRECTOR, OFFICE OF SMALL AND DISADVANTAGED BUSINESS UTILIZATION
CHIEF OF STAFF
VICE CHIEF OF STAFF
DIRECTOR OF THE ARMY STAFF
DEPUTY CHIEF OF STAFF OPERATIONS
DEPUTY CHIEF OF STAFF PERSONNEL
DEPUTY CHIEF OF STAFF LOGISTICS
DEPUTY CHIEF OF STAFF RESEARCH, DEVELOPMENT AND ACQUISITION
COMPTROLLER OF THE ARMY
ASSISTANT CHIEF OF STAFF INTELLIGENCE
ASSISTANT CHIEF OF STAFF AUTOMATION AND COMMUNICATIONS
U.S. ARMY EUROPE
U.S. ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND
U.S. ARMY INTELLIGENCE AND SECURITY COMMAND
U.S. ARMY COMMUNICATIONS COMMAND
U.S. ARMY FORCES COMMAND
U.S. ARMY TRAINING & DOCTRINE COMMAND
EIGHTH U.S. ARMY
U.S. ARMY JAPAN

Figure D-2. The U.S. Intelligence Community

BEST COPY AVAILABLE

APPENDIX E

Basic Tools and Concepts

APPENDIX E

BASIC TOOLS AND CONCEPTS

1. Purpose

This appendix consists of some basic tools and concepts for strategic analysis. These are described in some detail because they represent underlying requirements for many of the methods and techniques used in doing strategic analysis.

2. Basic Tools and Concepts for Strategic Analysis

The basic tools and concepts for using analytical techniques are as follows:

- Identifying assumptions.
- Biases.
- General problem-solving approaches.
- Probability assessment and general concepts of decision theory.
- Decision-making strategies.
- Pattern recognition and matching.
- Communication skills.

2.1 Identifying Assumptions

Whenever you try to evaluate the meaning of information, you must make a number of assumptions about that information. Some of these assumptions are made *explicitly*-- you know you are making them, and you understand their impact on the interpretations of the information that you are going to make. There are also *implicit* assumptions-- ones which you take for granted because you have become so accustomed to them that they have become part of the "background" against which you do your thinking. Unfortunately, some of these implicit assumptions may not be applicable to a given problem or situation. If you do not recognize that you are making them, such assumptions can needlessly constrain your solutions or distort your interpretations. In this section, we will discuss ways of making hidden assumptions more readily visible.

2.1.1 WHEN TO USE TECHNIQUES FOR IDENTIFYING ASSUMPTIONS

Implicit assumptions serve a useful purpose-- they make it unnecessary for you to have to "think through" all of the fundamental premises that you have learned through experience every time you encounter a new problem or situation. Consider the number of factors in the world (both the physical world and the cultural) that you do not explicitly consider every time you interpret information from your environment. If you had to constantly make judgments about them, you would be in the position of Aesop's centipede who, attempting to figure out how he managed to walk with all those legs, could no longer move.

Nevertheless, there are times when hidden or unchallenged assumptions can impede the problem-solving process by forcing you to work with propositions that stem from invalid premises. This is all too common a failing in human logic. To avoid being taken by surprise in a foreign environment in which deceptive practices must be anticipated, techniques for identifying assumptions that allow them to be explicitly reconsidered are extremely useful. These techniques are particularly applicable in the analysis, integration, and deduction steps of information interpretation.

2.1.2 HOW TO USE TECHNIQUES FOR IDENTIFYING ASSUMPTIONS

There are several *rules of thumb* for identifying the hidden assumptions that

you may be making. Some are "quick and dirty" methods, while others are more structured and time-consuming. Which ones you use will depend on your situation, thinking style, and resources available.

- **Change Representation:** You can often represent a problem or situation in different ways. Among these are the written and spoken word, pictures, maps, and mathematical expressions. Changing the way in which the problem or situation is modeled can bring implicit assumptions to the surface where they can be examined and, perhaps, rejected. Using multiple representations for the same problem can greatly strengthen the analysis, since the assumptions highlighted by each model are likely to complement each other. Make a point of examining situations to see if alternate interpretations or models are possible, and whether some of the weaknesses in the interpretations or data can be turned into strengths.

- **Question Premises:** Every hypothesis about a problem or situation is associated with a set of requirements and conditions that are held to be true. You should question these, for they may not accurately reflect the problem. This is especially true when the problem or situation is similar to problems or situations you have previously encountered; you may then inappropriately attribute the premises of the past problems to the new one. Ask yourself if your assumptions about the problem situation unrealistically limit your view of possible options.

- **Mirror Imaging:** We often assume that other people will behave as we would under similar conditions. The concepts, preferences, and perspectives that we have developed over a lifetime spent in our own culture may, however, be invalid when applied to others. The assumption that the enemy will act analogously to friendly forces may be correct, or it may be a critical flaw in the analysis; always challenge the validity of such an assumption.

- **Peer Review:** Take advantage of the fact that other analysts in your work environment are not immersed in the details of your task. They can provide excellent feedback as to the validity of the assumptions that go into your analysis. Take the risk of sharing your concepts, intuitions, and uncertainties with your colleagues. Their critical review of your interpretations can provide invaluable insight into both the product of the analysis and the *process* by which you arrived at it.

- **Sensitivity Analysis:** Test the sensitivity of your hypotheses to subtle changes in assumptions or small changes in the data. If a hypothesis is excessively sensitive to such changes, it may not be sufficiently "robust", and should be thought through again. Keep in mind that the majority of the data which must be used in intelligence analysis are uncertain and represent only a partial picture of the situation. Hypotheses that are not robust to small variations in the data tend to be risky under conditions of high data uncertainty. Recognizing this can help you justify your confidence in your hypotheses; remember that your clients need to know both what your interpretations are, and how certain you are about their validity.

  Another aspect of sensitivity analysis is determining what data would be fatal to your hypothesis, and seeking that information out. If you find disconfirming information, you must re-think the hypothesis. If not, you can place greater

confidence in its validity. Do not fall into the common trap of selectively pursuing only the information that will confirm your hypothesis. Proving you are "right" is far less important than accomplishing your mission of reducing the client's uncertainty.

- **Identify Unnecessary Constraints:** You may be placing constraints and limitations on your view of a situation that are unnecessary. Some of the ones to watch for are:

  — *Functional*: You may be limiting your options as to *how* to conduct the analysis. There may be sources of information, ways to represent information, or ways to process the information that you are not accustomed to considering. There is room for *creativity* in how you exploit your collection and production resources. Don't feel obligated to do something a certain way because that is always how you have done it in the past.

  — *Associative*: You may be making faulty associations between the current situation and some situation in the past that limit your options. You may also make faulty links between information and situations that are, in fact, unrelated. Experience is one of your most valuable assets, but keep in mind that relationships between the objects of intelligence analysis can change.

  — *Cultural*: You may be allowing your cultural biases to limit your perception of the options open to you or to others. Keep in mind that cultural, organizational, and personal values in other countries differ from your own.

  — *Emotional*: You may be permitting feelings to interfere with logic, closing off possibilities. This is *not* to say that feelings and intuition should be ignored-- sensitivity is a valuable asset in intelligence analysis that can be exploited. Do not, however, allow your personal emotions (anger, anxiety, affection) toward your enemy, the local population, or even your own forces interfere with your interpretations by restricting the possibilities that you are willing to consider.

  — *Perceptual*: You may find your view of a situation distorted by the way in which you are looking at it. Try to look at situations in different ways, from different points of view. Use multiple sensory modalities when possible. Be aware that "the eyes can play tricks," especially on a battlefield where deception may be practiced.

  — *Environmental*: You may be accepting limitations that appear to be imposed by the setting (either the work setting or the situation under analysis) that are not valid. Explore all possibilities for exploiting the environment and sources of information about the environment. Do not overlook potential support systems.

  — *Communicative*: You may react to constraints imposed by communications procedures and processes that are *artifacts* of the situation, and not part of the situation itself. That is, you should not permit the *ways* in which you receive and transmit information to become confused with the situation which is the object of your communication. Communications *about* situations always contain less information than the situation itself.

2.2 Cognitive Biases

The term bias refers to a subjective point of view. Typically, the term is used to indicate preconceived (and generally false) notions, attitudes, or judgments about something or someone. Biases are the result of being associated with specific environments, or they are the result of specific characteristics associated with the human information processing system. Biases can be categorized as follows:

- Cultural and Personal.
- Organizational.
- Cognitive.

Cultural biases are constraints on ones thinking, acquired during maturation from widely held beliefs, practices, or cognitive styles that characterize one's specific social environment. Personal biases are constraints that arise from specific past experiences of the individual. Organizational biases are constraints on cognitive flexibility imposed by local information, goals, mores, and traditions, that have evolved within the specific organization in which the individual serves. In many instances, cultural, personal, and organizational biases are in fact identical to the underlying assumptions that were discussed in the previous section.

Cognitive biases differ from the above in that they are to a large extent inherent characteristics of the way humans think, both in the way they recall information from memory and in the way they process (perceive and understand) information from their environment.

All humans are influenced by biases. The important issue, for analysts, is to recognize the types of biases that exist and be aware of the potential influences that these biases may have on intelligence analysis.

While cultural, personal, and organizational biases tend to distort one's view of the world, cognitive biases are not necessarily detrimental to one's thinking. In the absence of information, a preconceived idea about something can at least give the analyst a starting point for thinking about a situation. However, it is critical for the analyst to realize that the source of the idea is internal, and that the uncertainty level associated with it is quite high.

In general, cognitive biases tend to distort what you remember, how you remember, and how you evaluate information. To help you counteract these tendencies, several of the more common cognitive biases are discussed below.

2.2.1 SELECTIVITY BIAS

When you recall information from memory, you will not remember everything equally well. Information is selectively recalled as a function of how vivid, concrete, and personal it is. Vivid information has a greater impact on thinking than pallid, abstract information that may objectively have greater value as evidence. Information that is personally perceived is also likely to be better remembered than information received secondhand. Initial impressions and items that are first in a series also tend to be more vivid, and hence, better remembered.

Intelligence analysts generally work with secondhand information. On occasions when the analyst directly perceives information, such as during foreign travel or through direct communication with a national from a particular country, these events and information will become especially noteworthy. Such vivid experiences are often a source of new insights, but they can also be a cause of self-deception, and hence, they can bias your interpretation of a given situation. In the instance of foreign travel, the visitor typically will

become familiar with only a small sample of people representing a narrow segment of the total society. Incomplete and distorted perceptions are a common result of the selectivity bias.

2.2.2 *AVAILABILITY BIAS*

The ability to recall instances of an event is influenced by how recently an event occurred, by personal involvement, by how important it seemed at the time, and by vivid details. All of these factors are unrelated to the true probability of an event. These factors do, however, influence our judgment by making recall of such events more easily "available" from our memory.

When making judgments about the likelihood or frequency of certain events, the availability rule of thumb is used, according to which the probability of some event is judged by the ease with which we can imagine relevant instances of that event or the number of such events that we can easily remember. The availability rule often works quite well, but it can be misleading when the recalled vividness of an event is unrelated to its probability.

Using the availability rule is a time saver, but the intelligence analyst must be aware of such shortcuts and recognize the strengths and weaknesses of their use.

2.2.3 *ABSENCE OF EVIDENCE BIAS*

A principal characteristic of intelligence analysis is that key information is generally lacking. Analytical problems are selected on the basis of their importance and the perceived needs of the users, without much regard for availability of information. Analysts must do the best they can with limited information, but they must also anticipate the gaps and somehow take into account the fact that relevant information is known to be missing. Missing data are a normal characteristic of intelligence problems. Research has shown the difficulty that even experts have in recognizing and incorporating missing data into judgments of abstract problems.

The notion "out of sight, out of mind" should not be a description of the impact of gaps in information. The analyst needs to be able to explicitly identify those relevant variables on which information is lacking, consider alternative hypotheses concerning the true status of those variables, then modify their judgment (and especially their level of certainty) accordingly. It is also relevant to consider whether a lack of information on such variables is normal, or whether the absence of information is itself an indicator of unusual activity or inactivity.

2.2.4 *CONFIRMATION BIAS*

The confirmation bias is the result of the tendency to perceive events in such a way as to confirm what one already believes. It can occur in one of two ways. The first occurs because we tend to only *perceive* events that fit within our existing conceptual models. The second way is that we *distort* the meaning of what we see, so that it fits our preconceived ideas.

The confirmation bias is very pervasive; it is a result of our need to understand our environment in terms of what we already know. This need leads us to perceive what we expect to perceive.

This is important to remember during the process of generating hypotheses about a situation or some future event. The confirmation bias will cause you to perceive or interpret information in a way that will *confirm* hypotheses that you already have. At the same time, it will prevent you from realizing that the new data do not support your existing hypotheses.

2.2.5 *OVER-CONFIDENCE BIAS*

A large component of any analyst's job is to summarize complex ensembles of information into dichotomous judgments. For instance, you might have to decide whether a particular set of maneuvers are exercises or the early stages of an attack. Or, on the basis of personal impressions and reports, you might have to decide whether a particular informant is or is not competent.

An important aspect of such judgment tasks is the degree of confidence that accompanies them. That confidence may determine whether or not more information will be gathered, or whether an action will be taken.

In general, humans tend to be overly confident in their ability to make those types of judgments. Even with minimal information about a topic, humans will tend to generate a great number of hypotheses concerning a judgment task without testing these hypotheses properly. Over-confidence in one's judgments has been found to be the rule, rather than the exception. Such over-confidence may lead to premature cessation of information gathering and to ineffective decision making. The most effective way to overcome this type of bias is to be aware of it.

2.2.6 *THE OVER-SENSITIVITY TO CONSISTENCY BIAS*

Internal consistency in a pattern of evidence is a major determinant of confidence in judgments based on that evidence. In one sense, consistency is an appropriate guideline for evaluating evidence. We formulate alternative explanations or estimates and select the one that encompasses the greatest amount of evidence within a logically consistent scenario.

Under some circumstances, however, consistency can be deceptive. Information may be consistent only because it is redundant, in which case many related reports may be no more informative than a single one of them. Or it may be consistent only because the information came from a very small sample or a biased sample.

When working with a small but consistent body of evidence, analysts need to consider how representative that evidence is of the total body of potentially available information. If the analyst is stuck with only a small amount of evidence and cannot determine how representative the evidence is, confidence in judgments based on this evidence should be low regardless of the consistency of the information.

2.2.7 *THE RELIABILITY BIAS*

Humans have a tendency to deal with information at face value, regardless of the reliability of that information. There are many reasons why information may be less than perfectly reliable: small sample size that is not representative of the totality of the information; misperception or bias on the part of the source; distortion in the reporting chain; misunderstanding or misperception on the part of the analyst. Further, some of the information used in analysis is retrieved from the analyst's memory, and the degree of reliability originally attributed to the information may have been long forgotten.

Analysts generally must consider many items of information with different degrees of reliability that are related in complex ways. It is unlikely that the analyst can make neat mathematical or even intuitive calculations that take all reliability factors into account. There seems little the analyst can do about this problem short of breaking the problem down in a way that permits assigning probabilities to individual items, and then using a mathematical formula to integrate the separate probability

judgments.

2.2.8 *THE DISCREDITED EVIDENCE BIAS*

Impressions tend to persist even after the evidence that created those impressions has been fully discredited. When evidence is received, there is a tendency to postulate a set of causal connections that explains the evidence. Even though the evidence may subsequently be discredited, the causal links remain plausible even in the absence of the now discredited evidence.

Consider the example of an analyst receiving information from a clandestine source. The analyst may have formed a number of favorable impressions on the basis of earlier reports from this source. When the analyst finds out that the source is under hostile control and that the received information is probably unreliable, the analyst will tend to rationalize earlier impressions by arguing that the information is true despite the source being under control, or by doubting the validity of the report claiming the source to be under control. In the latter case, the phenomenon of "impression perseverance" may itself affect evaluation of the evidence that supposedly discredits the impression. Humans have a tendency to retain initial impressions concerning the validity of information and disbelieve new evidence that contradicts the initial impressions.

2.2.9 *ANCHORING*

Anchoring is one strategy that people seem to use intuitively and unconsciously to simplify the task of mentally processing complex information. Some natural starting point is used as a first approximation to the desired judgment.

This issue is particularly relevant when moving into a new work setting and taking over responsibilities from a predecessor. The predecessor's analytic estimates become a starting point. This starting point is then adjusted, based on the results of additional information or analysis. Typically, however, the starting point serves as an anchor or drag that reduces the amount of adjustment made, so that the final estimate remains closer to the starting point than it ought to be.

Anchoring is a particularly difficult bias to avoid. Analysts may attempt to ignore their previous work or others' earlier judgments and re-think the problem through. Time and information constraints may preclude using this solution. An alternative solution might be the use of formal statistical procedures. Bayesian statistical analysis, for example, can be used to revise prior judgments on the basis of new information in a way that is designed to avoid the anchoring bias.

2.3 Problem-Solving Skills

The analytical hypotheses that you formulate are often representations of *problems* that either you have solved or are trying to solve. Knowing *what* to hypothesize means that you have come up with an idea about the real world on the basis of scarce and uncertain information. This represents a solution to a problem in that you have decided the probable meaning or inter-relations of the information at your disposal; you will then want to test that meaning as a hypothesis. How to do that with the resources at your disposal may represent yet another problem.

As you are well aware, you ordinarily spend a significant amount of your time solving an enormous variety of problems of varying complexity. Since different problems call for different problem solving methods, you have had to develop some techniques for understanding the nature of a specific problem and for finding the best way to approach it on

the basis of all the methods that you have tried on other problems in the past. As an analyst, you will find the demands on your problem-solving skills even greater. In some cases, you will be expected to apply appropriate strategies to problems under stressful conditions; in other cases, you will also encounter problem classes that do not exactly match the kinds of problems you have faced in the past. You will need a systematic way to approach the process of working through alternate solutions until you come up with the "right" one for a given problem--something that we all do instinctively, but not always successfully or efficiently. The purpose of this section is to present some tools that will improve your skills for structuring approaches to problem situations.

2.3.1 *WHEN TO USE PROBLEM-SOLVING METHODOLOGIES*

The tools in this section are systematic guidelines and rules of thumb that apply to many situations involving planning, evaluation, assessment, explanation, and prediction. When applied formally, they can be time consuming but many of these skills can be applied informally, and should be used automatically by all good analysts. That is, problem-solving skills are *ways of looking at problems and problem-solving* that you should, with practice, find yourself using without having to stop and think about it. The skills should become a basic part of your approach to complex situations and novel problems. This can only happen by employing the techniques that will be discussed, and by observing how experienced analysts structure their own problem-solving efforts. All that can be done in this brief discussion is to give you an introduction to the techniques; to be able to really benefit from them will require some effort on your part. Since the techniques are so general, you can begin by trying out some of them on the problems you encounter in your personal planning. You can also find more detailed treatments of the techniques raised here in the references listed at the end of this appendix.

2.3.2 *THE PROBLEM-SOLVING SKILLS: WHAT THEY ARE AND HOW TO USE THEM*

It might surprise you to learn how much the *way you look at a problem* affects the speed (and success) with which you solve it. Most of the techniques discussed here are concerned with how you formulate a problem, and how you organize the steps in the solution. While the techniques will be discussed separately, they are not themselves "steps" in a process; the techniques are meant to work together. As noted above, they should become part of your "attitude" toward working through problems.

2.3.2.1 *A General Model of Problems.*

All problem situations have some elements in common. Since you will be learning systematic ways to structure approaches to different kinds of problems, it is useful to start off with a general model of problems themselves--the structure that they all share.

- All problems begin with an *initial state.* This is the condition of things when the problem is recognized or assigned to you.
- All problems have a *goal state.* This is the condition of things when the problem is solved; it is the desired state that you are trying to achieve.
- Progress is made from the initial state to the goal state by way of the *solution path.* The solution path is simply the sequence of steps you follow to achieve a solution. There may be more than one solution path;

you should be sensitive to which may be the best for your problem, especially when resources (e.g., time) are scarce.

- The elements of the problem are embedded in a *context*. The context may include parallel problems, resources available, country areas, and your own overall, guiding goals or those of your client.

When a new type of problem arises, identifying the four elements permits you to take the first step toward *defining the problem*. As will be seen, this is the first step in a systematic approach to finding a solution. A problem that is initially intimidating because of its complexity can become much more manageable when its elements, especially the initial and goal states, are well understood; however, the model is not meant to stand alone. It is simply a structuring tool that is used in combination with the other aspects of the general problem-solving model, to which we now turn.

2.3.2.2 *A General Model of Problem-Solving.*

There are several *problem-solving models* that represent ways to organize your problem-solving strategy. A general model is presented here that combines some of the best elements of the different models. This is obviously not the only approach to solving problems, but is very useful, especially when you come up against the unknown or unfamiliar.

The steps in the general problem-solving model are:

- *Understand the Problem:* Use the general problem-solving model described above. Be particularly careful to define the initial and goal states. It sometimes helps to ask yourself the following questions:
  - What is unknown?
  - What are the data?
  - How do the parts of the problem relate to each other? How do the data relate to the unknown?
  - Do you have enough information to find a solution; that is, do you have enough data and a clear enough picture of the relationships, or do you need to gather more information?
- *Analyze the Problem*: Find a way to *represent the problem*, that is, to show the relationship between its parts (especially the data and the unknown). It might be best to draw a picture, or perhaps to use a suitable notation (like a mathematical relationship, or a table). Ask yourself if you have seen the problem before, or, if not, if you know a *related problem*. To do this, it often helps to look at what is unknown, thinking about past problems with a similar unknown.
- *Devise a Solution Path*: Consider the alternative ways of solving the problem. If you have time, and more than one solution path exists, consider as many of them as possible, unless experience dictates a particular one. *Brainstorming* (see Table G-2) may help you to *hypothesize* multiple solution paths. A valid solution path may be known from experience, emerge gradually as a result of step-by-step analysis, or arise suddenly, as a "leap of insight." If, in analyzing the problem, you found a related problem or a problem with a similar unknown, you can use your past experience to devise one or more solution paths. If a solution path still can't be found, try *restating the problem*; by doing so, you might find similarities to problems with which you are familiar. Sometimes, if time is available, it is useful to "incubate" a difficult problem.

That is, having analyzed the problem, turn your attention to something else and let your unconscious mind work on a creative solution. If a solution, or an intuition that brings you closer to devising one, arises, analyze it as carefully as you would a solution that was arrived at by more explicit means.

- *Choose a Solution Path*: Select a solution path from those that you have considered and apply it. Follow your steps; if a step suddenly seems unreasonable, back up and reconsider the solution path.
- *Evaluate the Solution*: Look back and see if the goal state has actually been achieved. It sometimes happens that problem solvers can become so distracted by the complexities of implementing the solution path that they will not notice that the presumed solution does not match the goal as originally stated. Time permitting, results should always be checked. In addition, you can evaluate and document your solution path for future reference. This is important for justifying your results (to your client or other analysts who may use your data) and for dealing with similar problems in the future.

2.3.2.3 *Some Rules of Thumb for Difficult Problems.*

Three simple points can be quite useful in dealing with particularly stubborn problems:

- *Problem-Solving as an Iterative Process*: It is important to keep in mind that problem-solving can be highly *iterative* in nature. That is, problem-solving does not always proceed in a "straight line" from initial to goal state. Sometimes, new information or insight will cause you to go back to an earlier step in the solution path. This may occur repeatedly, as you gradually approach a solution. To say that problem-solving is iterative, however, is not to condone repeated backtracking through mis-directed effort.
- *Handling Ill-Defined Problems*: Not all problems lend themselves to easy definition at the beginning of the problem-solving process. If you try to approach a particularly vague problem by attacking it directly, you may end up with little progress. Instead, you may have to generate solution paths for the ill-defined problem, and then analyze the weaknesses in the inadequate solutions. Identifying those weaknesses may permit you to refine the original problem definition. By repeating this process, you may simultaneously converge on both a clear problem statement and an appropriate solution. Alternately, ill-defined problems can frequently be broken down into better defined sub-problems. This is the "divide and conquer" approach: redefine individual aspects of the problem, identify solution paths for each, and integrate the results. Sometimes the goal state can be subdivided into sub-goals, and solution paths found for each sub-goal, making the handling of ill-defined problems more manageable.
- *Divergent vs. Convergent Thinking*: Effective problem-solving requires both intuitive, free-flowing thought (*divergent thinking*) and rigorous analysis (*convergent thinking*). This is particularly apparent in hypothesis formulation. Careful analysis of a limited number of inadequate hypotheses cannot result in a quality intelligence product. On the other hand, an exhaustive, but unorganized, collection of creative hypotheses is useless until ordered

and analyzed. You must practice tapping both types of thinking at the proper time.

2.4 Probability Assessment

Probability assessment involves estimating how *likely* a situation or hypothesis is. Decision making and planning often call for assessing the probability of future hazardous events (e.g., a swift build-up of enemy forces) or the frequency of past hazardous events (e.g., the failure rate for a particular part or command system).

Probabilities can be assessed on the basis of measurement, experience, or intuitions and subjective impressions. In this section, systematic guidelines are presented for assigning probabilities and for recognizing some of the common biases that can distort your estimates.

2.4.1 WHEN TO USE PROBABILITY ASSESSMENT

One of the most significant concepts in doing strategic analysis is the *uncertainty* that characterizes it. Uncertainty enters into practically every aspect of strategic analysis and into practically every decision based on analytic results. Uncertainty in decision-making implies *risk*. An incorrect estimate can lead to a decision that is highly costly in terms of lives and materiel, and that leads to failure of the mission.

As an analyst, your role is to reduce your clients' uncertainties about the current and future situations and thereby help them make decisions. You must be able to evaluate your hypotheses and you must be able to document the reasons for your conclusions. This means that you need to be able to show how you arrived at estimates of the probabilities of events and situations, so that your clients can evaluate your analysis and determine the risk associated with a specific course of action.

Probability assessment, therefore, is a critical activity that requires a systematic approach to the problem of uncertainty. It figures strongly in hypothesis testing, evaluating the baseline situation, and cataloging your analytic processes. It requires an understanding of how to think in a climate of uncertainty, and an awareness of the common fallacies that skew probabilistic estimates.

2.4.2 HOW TO PERFORM PROBABILITY ASSESSMENT

In order to give you a foundation for working with uncertainty, we will present several topics concerning fundamental ways of thinking about probabilities. While there are mathematical aspects to many of these topics, and structured aids that can help you make decisions, these are beyond the scope of this document. You will find, however, that your judgements can be considerably improved by becoming familiar with the basic issues.

2.4.2.1 Defining Uncertainty.

Certainty is complete belief in a single answer to a question. *Uncertainty* is the inability of the analyst to provide a definitive answer with complete confidence. There are actually two types of uncertainty: *general uncertainty*, meaning that, in principle, no answer to the question can be provided with complete confidence; and *personal uncertainty*, meaning that, although *you* are uncertain about a question, the question could, in principle, be answered with complete confidence.

In order to state the certainty, or degree of belief, with which a conclusion can be reached, it is important to analyze *all of the possible* conclusions,

or answers to the question. When all of the answers are equally likely, you naturally experience the greatest uncertainty, for there is no rational way to choose among them. Uncertainty is reduced by defining one or more of the conclusions as more likely than others. Under these conditions, you can predict with greater confidence what the outcome of a situation will be, even though your prediction will still not be *perfect* (that is, guaranteed). Reducing uncertainty reduces the risk involved in making a decision, but does not eliminate it.

2.4.2.2 Dealing Quantitatively with Uncertainty.

We often talk of uncertainty in *vague terms*. One may speak of an event as being "likely", "possible", "probable", "almost certain", or use terms like "maybe", "iffy", "chancy", "risky", and so on. Such expressions can cause problems in analysis, since:

- They are used inconsistently by the same individual and among different individuals.
- Their interpretation varies with different contexts.
- They are not sensitive to small, but important, differences in belief.
- They often confuse the degree of belief with evaluation (that is, how "good" or "bad" some alternative is).

To overcome these weaknesses, it is preferable to speak *quantitatively* about uncertainty -- to express your degree of belief in a proposition with numbers. In order to do so, begin by considering all of the possibilities. Imagine that you have a "store" of belief that amounts to 100 units. Divide these units up among all of the possibilities. The result expresses the *percent certainty* of the various possibilities. This approach has several advantages:

- Numbers are identically understood by different people.
- Numbers permit comparisons.
- Numbers can accurately represent small differences.
- Numbers separate estimation from evaluation.

2.4.2.3 Estimation.

While assigning degrees of belief to alternatives is not a trivial task, there must be a rational basis for doing so, otherwise the analyst is "just guessing." Guessing can be valid if there is no other choice; but even for guessing there are guidelines to help avoid some of the pitfalls that render guesses inaccurate.

Estimation is the systematic assignment of a value (an *estimate*) when you don't have an exact, or "real" number. Obviously, assigning degrees of belief to conclusions or hypotheses usually requires estimation. In order to be "systematic", a set procedure must be established and followed consistently in making an estimate. In order to help you develop estimating procedures for various situations, the following points are useful:

- Consider, first of all, how *precise* the estimate must be. A range of values (as opposed to a single value) may be acceptable (or even preferable) in some situations.
- Define the relevant information needed to make the estimate, and pursue this information actively and persistently; use different channels and approaches for gathering information.
- Begin with a starting point (a preliminary estimate) and modify it as information becomes available (see Bayesian Analysis).

- As an alternative to selecting a single-valued starting point, you may find it more appropriate to select extreme values and narrow these boundaries as information is collected.
- In some circumstances, *decomposition* may be a useful technique: start with an estimate for a *whole* that is relatively well understood, and use information to compute an estimate for a *component* of the whole.
- Alternately, you may make estimates about a whole by *recomposing* estimates for its parts.
- Whatever the estimating procedure, *check* the results afterwards. See if they "make sense" given your understanding of the situation and experience with similar situations in the past.

2.4.2.4 Assigning Probabilities

When you express your certainty about a hypothesis or answer to a question as a percent of your "store" of belief, you are stating the *probability* that the hypothesis or answer is correct. Probability can be thought of as the percent of the time that a particular outcome will occur over an infinite number of independent trials. Consider, for instance, flipping a coin. We would expect "heads" to come up about fifty percent of the time, and "tails" to come up fifty percent of the time. Since probabilities are usually expressed in decimal fractions (with 1.00 indicating total certainty that an outcome will occur and 0.00 indicating the impossibility of the outcome), we could state that the probability of heads is 0.50, and the probability of tails is 0.50. That is, your *certainty* about getting heads on a particular flip of the coin is 50%, or 0.50.

Probabilities can either be calculated, or assigned through your own subjective reasoning. While everyone would agree on the results of probability calculations (because the methods are, in general, well established and standardized), people can disagree over subjective assignments of probabilities. We will consider these two areas separately.

Probabilities can be calculated in two ways:

- If all possible outcomes of a group have an equal probability of occurrence, the probability of a particular outcome is equal to the percentage that the outcome occurs in the group.
- If an event is repeated over many trials, the probability of a particular outcome is equal to the proportion of times with which it occurred over the many trials.

The instances in which actual calculations of probabilities are possible are limited in typical strategic situations. This is because frequency data or population descriptions for events are often not known. You must rely on subjective assignment of probabilities.

This is often attempted either by comparing a situation with a prototype of which you have certain knowledge, or by estimating frequencies based on your past experience. Unfortunately, both of these can lead to error. Consider, for example, predicting an enemy course of action based on what the enemy has done in the past. While this seems (and may be) reasonable, it must be recalled that surprise is an important battlefield variable. General Patton predicted the German attack on Bastogne, which seriously threatened the 101st Airborne Division and the entire European campaign, on the basis of the fact that the weather did not favor an enemy attack and that the enemy had not attempted such a winter operation

since Frederick the Great; therefore, the Germans were likely, out of desperation, to attempt just such an operation.

Your subjective assignments of probabilities can be made more reliable by following these steps:

- Start with a limited number of the relevant characteristics of the event in question, preferably characteristics for which you have valid frequency (or population distribution) data. You can start with a single characteristic.
- Make an initial estimate of the probabilities based on the characteristic(s).
- Consider each additional characteristic, gathering data on it if necessary. Carefully weigh the *reliability* (how accurate is the measurement of the characteristic; would it vary much if repeated measurements were taken?) and *validity* (is the measurement relevant; are you measuring what you think you're measuring?) of the data. Do not include *redundant* data, that is, data that do not add any new information to the problem.
- Modify the probability estimates on the basis of the new data.
- After repeating this process until the data are exhausted, *check* the estimates against common sense, intuition, and experience.

A common problem in probability assessment concerns how people judge events that have low frequencies and probabilities. Research has shown that humans have subjective frequency scales that are highly consistent internally, but that are systematically biased. Two kinds of biases were identified:

- A tendency to overestimate small frequencies and underestimate larger ones.
- A tendency to exaggerate the frequency of some individual events and to underestimate the frequency of others.

These biases are related to the selectivity and availability biases discussed earlier. Since analysts frequently deal with low frequency events and must make forecasts based on their estimates of such events, it is important for you to become familiar with these biases.

2.4.2.5 *Hypothesis Testing*

In scientific terms, testing a hypothesis refers to establishing the probability that the results you have obtained are explained by the propositions of your hypothesis, and not by chance. For example, assume that you have three indicators suggesting that the enemy is about to attack. These indicators are based on sensor readings that may be subject to fluctuations due to system errors, bird migrations, power supply fluctuations, weather, and so on. Stating that the indicators support your hypothesis means that you consider the probability of obtaining those sensor readings as a result of a combination of random variations to be "small." Just how large a probability of obtaining those effects by chance you are willing to tolerate and still consider your hypothesis supported by the facts depends on the circumstances; there is no hard and fast rule for making the decision. If your hypothesis involves high risk, you are more likely to at least consider it, even if the supporting evidence can be explained by chance or by *rival alternative hypotheses*. If the hypothesis involves low risk, you may determine that more rigorous evidence is required before accepting it.

In accepting or rejecting a hypothesis, there are two types of error that you

can commit. The first is called *Type I error*, and refers to the possibility of accepting your hypothesis when it is, in fact, false. *Type II error* refers to rejecting your hypothesis when it is, in fact, true. The two kinds of error represent a trade-off in hypothesis testing; decreasing one tends to increase the other (in a complex way that is beyond the scope of this section). You must therefore consider the relative risks for each particular situation.

By using a structured approach to uncertainty and probability, you can do a better job of communicating your results to your clients by supplying them with quantitative, reliable estimates of situations. You will also be better able to document the reasoning behind your conclusions, enabling your clients (and other analysts) to evaluate and understand your analysis.

2.5 Decision-Making Strategies

Decision-making is an integral part of life. As an analyst, you will make many decisions. For example, you must decide where and how to obtain data, whether or not to use these data, and what their meaning are. Various decision strategies may simplify this decision-making process.

- *Optimizing* requires that you evaluate each piece of available information against mulitple criteria to determine its expected cost or benefit, then select the best of this information. This strategy increases your chance of selecting information that benefits you the most, but it is time-consuming and should only be used when there is no time pressure and the information load is relatively light.
- *Satisficing* requires that you select any information that satisfies a minimal set of criteria. No attempt is made to make a comparison between available pieces of information. Use this strategy only when you are interested in a general improvement over an existing situation.
- *Elimination-by-aspects* allows you to eliminate information by evaluating it against a set of criteria that have been organized from highest to lowest priority. Information that does not meet the highest priority criterion is eliminated. The remaining information is then evaluated against the next highest priority criterion, and so on until only that information that meets all criteria remains. Criteria must be carefully prioritized for this strategy to be successful.

2.5.1 SOME FACTORS THAT LEAD TO FAULTY DECISIONS

- *Bolstering.* Once information has been selected, it often becomes more "attractive" than it was during its initial evaluation. This happens through a process called "bolstering." Bolstering occurs when only the positive aspects of selected information and only the negative aspects of non-selected information are emphasized. Thus, bolstering indicates a lack of objectivity. This must be avoided to prevent biasing future information evaluation and selection.
- *Groupthink.* Analysts sometimes work collectively on an intelligence assignment. Several problems can arise in group decision-making situations.
  - members of the group tend to develop an illusion of invulnerability that may encourage excessive optimism and risk-taking.
  - members collectively rationalize in order to discount warnings.

- members tend to sterotype rivals and enemies as too evil to warrant negotiation.
- members who express opposing views are put under pressure by other group members and may be ostracized if they persist.
- members tend to practice self-censorship to reduce deviation from the group standard.

2.6 Pattern Recognition and Matching

Pattern recognition and matching involves two major processes:

- A process whereby information in the environment is compared to the conceptual model one has of it in memory. The importance to the analyst lies in the way relevant information is recognized from irrelevant information. This process is required for many techniques, such as the recognition of indicators.
- The recognition of repetitions and patterns of events or behaviors that already exist in the environment. This is an important process when using techniques such as Historical Analogy.

There are no definite guidelines that can be used to aid these processes. The major point to keep in mind is that these processes are improved in direct proportion to the background knowledge you have concerning the problem situation.

2.7 Communication Skills

Communications skills comprise your abilities to present verbal and written information to your clients, and to solicit information from your clients, other analysts, or other individuals.

Your basic goal as an analyst is to produce a product that decreases your clients' uncertainty and increases their ability to make decisions.

You also need to fully understand the goals and requirements imparted by your clients, and be able to solicit the information you may need to satisfy those requirements from other individuals in your work setting. As an intelligence analyst, you must be able to effectively communicate with intelligence and combat personnel in your own and other intelligence communities. Basic skills in human communication are an indispensible part of your preparation as an analyst.

2.7.1 HOW TO USE COMMUNICATIONS SKILLS

There are numerous references on how to communicate effectively with other people. You will find some of these at the end of this appendix. In these few pages, it is possible only to suggest some of the dimensions of the communication process in analysis.

2.7.1.1 Active Communication.

Communication is an *active* two-way process. That is, both the formatting and transmitting of information, and the act of receiving and decoding the meaning of the information, require initiative on the parts of both parties to the conversation.

Communicating always involves *shared conceptual models.* When you are telling someone about a situation, you assume a great deal about what that person already knows about the situation. You also make many assumptions about the person's "common sense knowledge" about the world, and about how the person responds to certain combinations of words, figures of speech, tone of voice, body language, and so on. Sending a message so that it is understood requires that you make

an effort to understand the conceptual models of the receiver, and make your message conform to a pattern that "fits" those models; it is not simply a matter of talking or writing what you think. Listening to a message means that you actively fit the message into your own conceptual models; it is not simply a matter of keeping your ears open.

You must also be sensitive to a mismatch between your idea of what another person's conceptual models may be and what they actually are. Many misunderstandings occur when this is not done effectively. Subtle nuances of voice and style, as well as the contents of a message, can alert you to possible misunderstandings. Some of the techniques that will be discussed in this section can help you to achieve such sensitivity.

2.7.1.2 Eliciting Information.

When you try to elicit information from someone, you are asking that person to do something for you-- to give up time and energy. In addition, the person may not be inclined to share the information that you are after. You must therefore motivate that person to supply you with the information you need. You can facilitate the process by keeping in mind the following:

- Express appreciation for the information.
- Listen with interest both to the answers to your questions and to comments that may not be directly relevant to the questions.
- Make comments to show your understanding and interest.
- Provide relevant information of your own to stimulate the conversation, but watch out for the other person's reactions; don't bore them, or you will lose their attention.
- Start by asking easy questions--people enjoy giving answers they know are right.

2.7.1.3 Structured Questions.

One useful way to classify questions is by their degree of structure. The structure of a question has a great deal of influence on the kind of answer given. A highly structured question asks for a specific fact. It also requires preparation on the questioner's part. A low-structured question, on the other hand, requires little thought to formulate it. It is designed merely to stimulate the other person to talk in a particular area, without the questioner necessarily having much of an idea about where the talk might lead. If time is limited, it is best to use well thought-out, structured questions.

2.7.1.4 Unstructured Questions.

If you need a lot of information from another person, the key is the low-structured question. It initiates the other person's thinking processes, and activates the *conceptual models* necessary to address the topic. The more unstructured the question, the more information you are likely to get.

There are four ways to ask unstructured questions:

- Ask questions that cannot be answered "yes" or "no".
- Preface key words with "what about" or "how about".
- Repeat back the key words.
- Summarize and repeat back the answer as you understand it.

2.7.1.5 *Formulating Communications for Transmission.*

In formulating the product of your analysis for transmission, you need to know who the users of your product will be and what their needs are. If you have more than one user for your intelligence products, you may need to formulate the output in more than one way. You may have to use the same information, but select or emphasize certain aspects of it to fit each user's needs.

Good communication involves knowing the other person's point of view, knowing what they need to know, and selecting only relevant information to transmit to that person. Relevant information is information that makes a difference in the way the recipients think, and that will help them make decisions concerning courses of actions. Specifically, relevant information will reduce the recipients' uncertainty with respect to their initial requirements and solutions to problems.

The following guidelines are helpful in determining what is important to the users of your intelligence products:

- Understand the users' goals, context, and time frame.
- Know what the users know so that the communication involves "updating" their knowledge, rather than giving a complete picture of the situation, each time. This saves time and reduces the potential for communication errors.
- Elicit feedback from the users. If uncertainty was reduced, then the information was relevant.

2.7.1.6 *Feedback*

Whether your questions are structured or unstructured, feedback is essential in communications of any kind. You must elicit feedback from your clients, to insure that you comprehend all of their requirements, but at the same time, you must provide them with feedback as well. Feedback insures that the parties to conversation understand each other within the same context, and that they define the concepts or issues discussed in the same way. In other words, feedback permits the verification of the shared conceptual models involved in the communication. Techniques for insuring proper feedback include:

- Repeat key words and ask for confirmation that the key words are the same for the other person.
- Summarize back and ask for confirmation.
- Ask for additional key information.

APPENDIX F

Worksheet to Establish Constraints and Resources

APPENDIX F

WORKSHEET TO ESTABLISH CONSTRAINTS AND RESOURCES

Answer all questions in as much detail as possible.

Preliminary Considerations
Client(s):
Client requirement:
Assumptions underlying requirement:
End use of product (planning, decision-making, etc.):
Tasks needed to achieve product:
Possible techniques to use:
Are there any conflicts concerning the requirements, time and resource availability, underlying assumptions? - If so, how can they be resolved?

Time Constraints
What is the total suspense time for the product?
How much of this time must be allocated to:. - information delivery from collection resources? - survey and organization of collected information? - analysis and integration of new information? - drafting final report?
What is the total amount of time that I can devote to this project?

Resource Constraints
What resources are *essential* to this project?
When are these resources available; how easy/difficult are they to acquire?
Within these essential resources, which have the highest priority?
What are the procedures to allocate resources to my project?
What types of data will be used to create the product?
Which information exists in documented form and which information must be collected?
What information can be obtained from other analysts?
Who are they? How can I contact them?

Level of Effort Constraints
Who else (if anyone) is working on this project?
Are there existing projects with areas of interest that coincide with the project I am working on?
What is the level of accuracy and the breadth of knowledge desired by the client for the final product?

Personal Knowledge Requirements
What areas (geographic, political, cultural, etc.) do the product involve?
Do I have enough knowledge about these areas?
Do the requirements specify a particular technique or method? - Am I familiar with the method? - Have I ever used it before? Was it successful? - What problems did I have with it?
If I do not have enough knowledge about the area of interest, or method, what resources are there to supplement my knowledge (other analysts, courses, literature, etc.)?

APPENDIX G

Guide to Analytic Method Selection

APPENDIX G

GUIDE TO ANALYTIC METHOD SELECTION

1. Purpose

This appendix is an introduction and a preliminary guide to selecting tools and techniques for doing strategic analysis. It will suggest questions that are relevant in selecting a particular technique, and provide a guide for using the table of tasks (Table G-1) and the table of techniques (Table G-2). It is not possible to provide details of the concepts, tools, and methodologies you will be using; however, a brief description/definition and a reference for each technique mentioned in the tables are included.

The first section consists of a summary of guidelines, concepts and questions to keep in mind before selecting a technique for a particular task.

Table G-1 makes up the second section. Table G-1 is organized by broad general classes of tasks performed by strategic analysts. Relevant techniques are proposed for these classes of tasks, as well as those "Basic Tools and Concepts" (see Appendix E) that are particularly appropriate for the given class of tasks. The third section contains Table G-2, an alphabetical list of all techniques mentioned in Table G-1, followed by the definition of each. Attributes and relevant aspects of each technique are also identified in Table G-2.

2. General guidelines and cautions

- All techniques proposed in this appendix should be viewed primarily as suggestions. As you become proficient in using various approaches and techniques, you may want to make up your own tables and checklists, following the structure of Tables G-1 and G-2.
- In Table G-1, techniques are presented according to broadly defined tasks that a strategic analyst generally performs. In practicality, however, these tasks are not that well defined. That is, the distinction between tasks, as well as between methodologies, is often somewhat tenuous. It is up to you to understand the tasks and the methodologies well enough so that, in time, you become very good at matching one with the other. The guidelines presented here should only be viewed as initial suggestions.
- For a given task, there are usually different techniques that may be appropriate, just as a given technique can frequently be used for more than one type of task. In Table G-2 we have attempted to present the major constraints and requirements for using a specific technique. However, techniques are frequently adaptable. If a technique appears relevant for a particular task, a reference should be consulted, regardless of the constraints and requirements mentioned in Table G-2.
- Some of the techniques listed in this appendix can be applied either informally, or in a quantitative and/or structured manner (for example, decision analysis). Structured and/or quantitative techniques are generally more costly and time-consuming to use; they may also be more accurate than unstructured techniques. However, if you have a choice between structured and unstructured techniques, there is another criterion to apply: namely, the quality of the data you are using. If you use a quantitative technique with unreliable and/or invalid data, the results of the analysis may look more impressive than if you use an informal method,

but they will also be more misleading. The results of a quantitative application are only as good as the input data.

- Humans have a bias towards believing that numbers are, by definition, better and/or more accurate than qualitative statements. In general, the more structured, formal, and/or quantitative the technique used, the more likely are the results going to look impressive and hence, accepted "on faith" by the user. Therefore, the more careful you have to be in your use of data, procedure, and presentation of results.

  You must understand the assumptions underlying the collection and the manipulation of the data, and you must know and review the cognitive biases that pervade human information processing. In Appendix E, we have included a section on biases and on the identification of assumptions because these are basic to doing good strategic analysis.

- All analyses should always be tempered by good judgment. Good judgment is difficult to define. However, it may be thought of as combining good mental faculties, good area knowledge, an understanding of cognitive and other biases, an understanding of underlying assumptions, plus a tempered use of intuition. Intuition is another fuzzy concept, but one that is very important in intelligence analysis. For intuition to contribute positively to analysis, it must be guided by a thorough knowledge and understanding of the topic to be analyzed.

The above represent some general comments that are important for you to keep in mind before selecting a particular technique for a particular task. You must also remember to determine available resources and establish existing constraints as outlined in Appendix F.

3. Categories of Strategic Analysis Tasks

Tasks can be identified on several dimensions that tend to be orthogonal to each other. However, for present purposes, the tasks selected are those that correspond to the six procedural steps described in Chapter 5.

It must be remembered that categorizations of tasks and of techniques are by no means clear-cut. We are only presenting one of several possible structures for organizing these concepts. They are primarily suggestions to help you devise your own, since only you can determine what type of organization is most suitable to your needs.

The same is true for the references provided. They are only designed to give you a start in your search for useful references. Several of the references provided (e.g., the "Handbook of Forecasting Techniques") are merely a good source for additional references. They do not provide enough details so that a particular technique can be applied.

In selecting a method or technique, there are no hard and fast rules to follow. The general approach is to use any method or technique that helps get the job done in the most efficient and accurate manner. Your goal must be to improve analysis, and to view systematic methods as one means of trying to overcome problems that seem inherent in the process of conducting intelligence analysis.

4. Techniques: Characteristics and Definitions

Table G-2 is an alphabetized list of the techniques mentioned in Table G-1. For each technique, the following attributes are identified:

- data requirements (i.e., in general, what types of data are necessary to perform these techniques?).

- usable time frame (many of the techniques listed are used in forecasting; the usable time frame refers to the typical forecasting period that the technique is appropriate for).
- type of procedure used (this refers to the primary means of processing information, underlying each technique).
- output characteristics (this refers to the form of the output, after the technique has been applied).

Table G-2 is then followed by a brief definition/description of each technique listed.

Figure G-1 is a graphic representation of how to use Tables G-1 and G-2 to select an appropriate technique for strategic analysis.

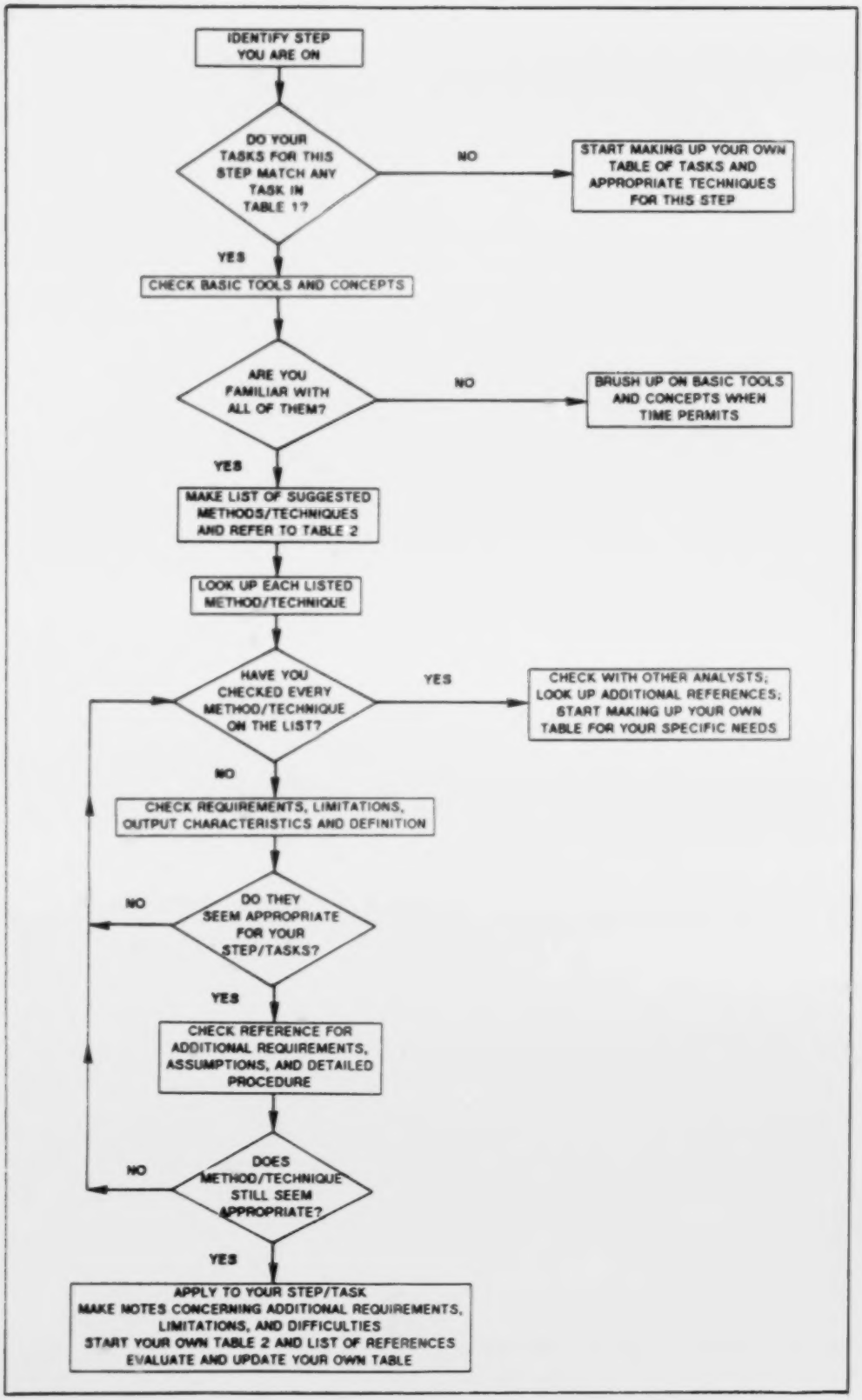

IDENTIFY STEP YOU ARE ON
DO YOUR TASKS FOR THIS STEP MATCH ANY TASK IN TABLE 1?
NO
START MAKING UP YOUR OWN TABLE OF TASKS AND APPROPRIATE TECHNIQUES FOR THIS STEP
YES
CHECK BASIC TOOLS AND CONCEPTS
ARE YOU FAMILIAR WITH ALL OF THEM?
NO
BRUSH UP ON BASIC TOOLS AND CONCEPTS WHEN TIME PERMITS
YES
MAKE LIST OF SUGGESTED METHODS/TECHNIQUES AND REFER TO TABLE 2
LOOK UP EACH LISTED METHOD/TECHNIQUE
HAVE YOU CHECKED EVERY METHOD/TECHNIQUE ON THE LIST?
YES
CHECK WITH OTHER ANALYSTS; LOOK UP ADDITIONAL REFERENCES; START MAKING UP YOUR OWN TABLE FOR YOUR SPECIFIC NEEDS
NO
CHECK REQUIREMENTS, LIMITATIONS, OUTPUT CHARACTERISTICS AND DEFINITION
DO THEY SEEM APPROPRIATE FOR YOUR STEP/TASKS?
NO
YES
CHECK REFERENCE FOR ADDITIONAL REQUIREMENTS, ASSUMPTIONS, AND DETAILED PROCEDURE
DOES METHOD/TECHNIQUE STILL SEEM APPROPRIATE?
NO
YES
APPLY TO YOUR STEP/TASK
MAKE NOTES CONCERNING ADDITIONAL REQUIREMENTS, LIMITATIONS, AND DIFFICULTIES
START YOUR OWN TABLE 2 AND LIST OF REFERENCES
EVALUATE AND UPDATE YOUR OWN TABLE

Figure G-1: How to Use Tables G-1 and G-2

STEPS AND TASKS	BASIC TOOLS AND CONCEPTS	SUGGESTED METHODS AND TECHNIQUES*
Step 1. Understand the Intelligence Requirement. • Know Client needs. • Translate requirements into specific objectives and tasks.	Communication Skills Identifying Assumptions Recognizing Biases	**Techniques** Goal Analysis Mission Flow Diagrams Client Profile Checklist Expert Opinion
Step 2. Prepare an Initial Intelligence Survey. • Identify what is known. • Identify what is unknown. • Identify areas of uncertainty. • Identify memory/data shortfalls. • Recognize threat. • Develop a threat model. • Define/formulate the problem.	Problem Representation (see General Problem Solving). Identifying Assumptions Pattern Recognition and Matching Probability Assessment Memory Skills	**Methods** Cut and Paste LRPE Scientific Method (Steps 1&2) Change Signals Monitoring (Step 1) War Gaming - Modeling **Techniques** Intelligence Survey Checklist Expert Opinion Exponential Smoothing Historical Analogy Leading Indicators Precursor Events Scenarios Time Lines
Step 3. Select an Analytic Method. • Assess constraints • Formulate hypotheses • Formulate plans	General Problem Solving Identifying Assumptions Pattern Recognition and Matching (recognizing similarities in different requirements) Decision-Making Strategies	**Methods** Scientific Method (Step 2) **Techniques** Worksheet to Establish Constraints and Resources Appendix H) and Table G-2 Brainstorming Cost-Benefit Analysis Decision Matrices Decision Theory Goal Analysis Mission Flow Diagrams Multi-attribute Utility (MAU) Relevance Trees Synectics System Analysis

Table G-1: Concepts, Methods, and Techniques for Supporting the Steps of Analysis

STEPS AND TASKS	BASIC TOOLS AND CONCEPTS	SUGGESTED METHODS AND TECHNIQUES*
Step 4. Execute the Method. • Collect data • Evaluate data • Interpret data • Develop estimates • Evaluate hypotheses • Identify possibilities	Pattern Recognition and Matching Identifying Assumptions Recognizing Biases Probability Assessment and Decision Theory	**Methods** Change Signals Monitoring (Step 3) Cut and Paste LRPE Scientific Method (Steps 3&4) War Gaming-Simulation **Techniques** Anomalous Event Matrix Bayesian Analysis Breakthroughs Canonical Trend Variation Critical Event Filters Delphi Decision Matrices Decision Theory Intuitive Analysis KSIM MAU Panels Relevance Trees Worksheet for Identifying Informational Value of Data (Appendix H)
Step 5. Prepare a Revised Intelligence Survey. • Predict future threat • Impact Assessment • Evaluation	Probability Assessment Identifying Assumptions Recognizing Biases	**Methods** Change Signals Monitoring (Step 4) Cut and Paste LRPE Scientific Method (Steps 4&5) **Techniques** Bayesian Analysis Cross-Impact Analysis PAMNACS and DENS Dynamic Models KSIM Probabilistic Forecasting Scenarios Time Lines Trend Extrapolation
Step 6. Produce a Report of the Production Results.	Communication Skills Identifying Assumptions Probability Assessment	**Techniques** ITAC Writer's Guide Ideal Product Checklist Expert Opinion

* A method is a broad general approach that has components which can be applied to many of the steps in conducting strategic intelligence analysis. A technique is a more specific tool for doing a particular task. Several different techniques may be useful within a general method.

TABLE G-1 (Continued):
Concepts, Methods, and Techniques for Supporting the Steps of Analysis

BEST COPY AVAILABLE

Technique	TYPE OF DATA REQUIRED: Subjective Estimates	Imagination	Discrete Events	Descriptive Data (2)	Statistical Data/Trends	Quantitative Data/Models	Expert Opinions	Historical Data		Special (3)	USEFUL TIME FRAME (1): Short-Term	Medium	Long-Term	Any	Varies with Problem	GENERAL APPROACH: Structured/Systematic	Subjective/Judgmental	Discussions	Pattern/Unusualness Recognition				LIMITATIONS: ADP Required	Other Personnel Required	High Cost	Time Consuming	Imprecise/Inflexible	Procedure May Distort Results		Special (3)	OUTPUT CHARACTERISTICS: Predictive	Descriptive/Qualitative	Statistical/Quantitative	Evaluative/Diagnostic	Concrete	Graphics (4)	Normative			
Anomalous Event Matrix (Anem)		•	•			•										•																							
Bayesian Analysis	•	•									•	•				•	•													•	•								
Brainstorming		•								•				•				•												•		•	•	•					
Breakthroughs			•	•									•	•			•		•				•	•							•	•	•	•					
Canonical Trend Variation	•	•		•						•				•			•		•						•					•	•	•	•	•					
Change Signals Monitoring			•	•		•								•			•									•	•				•	•	•	•					
Cost-Benefit Analysis	x					x				•				•	•	•								x	x				•			•	•	•					
Critical Event Filters (CEF)			•	•							•	•		•		•							x	x	x							•	•						
Cross-Impact Analysis	•			•		•					•			x		•	•													•	•	•	•					
Cut and Paste				•							•					•	•						x	x	x	•				•	•	•	•	•	•				
Decision/Event Network (DEN)			•	•			•				•	•					•										•				•	•							
Delphi		•					•						•	x		•							•								•	•		•					
Decision Matrices	•		•	•		•									n/a	•	•	•					•	x	x						•	•	•	•					
Decision Theory	•		•		•	•								•		•	•							x	x						•	•	•	•					
Dynamic Models					•	•				•			•			•	x						x	x	x	x		x			•	•	•	•					
Exponential Smoothing			•			•		•			•				•	•	•		•				•	•	•	•		x		•				•	•					
Game Theory	•				•	•					•				•	•							x							•	•	•	•	•					
Goal Analysis				•											•	•							x	•	x	x					•	•		•					
Historical Analogy				•				•				•	•			•	•		•													•			•				
Intuitive Analysis	•			•											•		•		•									•			•	•							

Table G-2: Strategic Analysis Techniques

BEST COPY AVAILABLE

Technique	TYPE OF DATA REQUIRED: Subjective Estimates	Imagination	Discrete Events	Descriptive Data (2)	Statistical Data/Trends	Quantitative Data/Models	Expert Opinions	Historical Data		Special (3)	USEFUL TIME FRAME (1): Short-Term	Medium	Long-Term	Any	Varies with Problem	GENERAL APPROACH: Structured/Systematic	Subjective/Judgmental	Discussions	Pattern/Unusualness Recognition				LIMITATIONS: ADP Required	Other Personnel Required	High Cost	Time Consuming	Imprecise/Inflexible	Procedure May Distort Results		Special (3)	OUTPUT CHARACTERISTICS: Predictive	Descriptive/Qualitative	Statistical/Quantitative	Evaluative/Diagnostic	Concrete	Graphics (4)	Normative			
KSIM						X	●																●	●							●									
Leading Indicator					●	●		●		●	●					●	●	●	●																					
LRPE	●		●	●				●					●			●	●		●									●			●									
Mission Flow Diagrams	●			●	●	●					●			●		●	●														●									
Multi-Attribute Utility (MAU)	●																						X	X																
PAMNACS			●	●	●		●				●	●				●															●									
Panels							●				●			●				●						●							●									
Precursor Events			●	●	X	X	X	●							●		●		●												●	●								
Probabilistic Forecasting	●					●					●	●			●	●			●						X	X														
Relevance Trees				●	●	●	●									●							X	X							●								
Scenarios		●		●												●								X	●	●						●							
Scientific Method	●	●		●	●	●										●	●														●						●	●	
Simple Regression			●			X		●						●	●	●	●						X	X							X	X	X	X	X	X	X		
Social Trend Analysis				●	●			●						●		●			●				X								●		●						
Synectics		●	●		X			●		●									●					X	X						●								
Systems Analysis						●				●				●	n/a	●	●	●	●					●										●						
Time Lines			●		●									●	n/a	●	●						X		X	X						●	●		●				
Trend Extrapolation						●		●			●					●			●													●				●	●		
War Gaming		●	●	●		●					●					●							X	●	X	X						●				●	●		

Legend

(1) Usually applies to forecast.

(2) Refers to various existing information from open and other sources, including personal knowledge.

(3) Special requirements for data, or special limitations are mentioned in the definition/description section.

(4) Graphics include models, flow charts, matrices, etc.

(5) ● = Typically true for that technique.
X = Varies with specific problem area.

Table G-2 (Continued): Strategic Analysis Techniques

4.1 Definitions/Descriptions of Techniques

Anomalous Event Matrix (ANEM)

The anomalous event matrix is an approach to aiding in the difficult tasks of recognizing novel threat situations and of dealing with new data. The technique involves special examination of input data that does not relate satisfactorily to established models. A simple matrix is developed for assessing incoming data against new hypotheses. The intended result is to develop new perspectives for looking at incoming data. These new perspectives can then be used to modify or expand the existing models or create new ones.

Reference: Clarkson, 1981.

Bayesian Analysis

Bayesian analysis is a statistical procedure for revising a probability judgment on the basis of new information. It is based on *Bayes' Theorem*, which takes as a starting point your estimate of the likelihood of an event (or multiple events). When a new piece of information becomes available, you can update your estimate of the event's likelihood, even though the new information is of uncertain validity. The process can be repeated as more information is obtained. Bayesian analysis is particularly important to strategic analysts because it can be used to estimate the probability of a unique event, when there is an n of 1.

The normal, straightforward way to evaluate evidence is to ask, "Given this evidence, what is the probability of the various hypotheses?" Bayesian inference poses the question in a seemingly backwards manner: "Given the truth of this hypothesis, what is the probability of seeing this evidence?"

Bayesian calculations are periodically updated as events evolve over time. The events that are used for this updating are the tactical indications, namely, specific evidence from current events that indicate the direction in which events are moving.

The analysts's overall intuitive evaluation of probabilities usually lags behind events, and the Bayesian procedure compensates for this, in that is gives greater weight to current evidence than intuitive analysis does. It compensates for the bias that makes us err in the direction of being too strongly influenced by the most recent reporting or the latest short-run trend (e.g., recency and availability biases).

Reference: Heuer, 1978; Clauser & Weir, 1975.

Brainstorming

In this technique for evoking creative thinking, a group accepts a very precise problem and comes up with as many ideas as possible concerning its solution. Every idea, no matter how remote, is accepted. Success of the method seems to depend on the freedom and imagination used in inventing ideas. Only at a later stage are the ideas tested for practicality. Synectics is a more structured variant of brainstorming.

Special Data Requirements: No data are required except ideas. Requirements for data come after the brainstorming, to check the practicality of proposed solutions.

Reference: VanGundy, 1981.

Breakthroughs

Breakthroughs refer to a systematic seeking out of precursor events in order to identify potential signals in

hypothesizing a pattern or breakthrough. A breakthrough appears to transcend prior limitations. It is used to watch for technological breakthroughs and to obtain warning of any other shifts in the environment that might affect the analyst's area of interest. However, the analyst must understand the nature of precursor events within the relevant area of interest and must screen the incoming data based on needs and goals.

Breakthroughs is a technique used in conjunction with other forecasting methods to perform analysis; it is not a data gathering technique.

Special limitations: There is no sure way to assign a threshold to a potential signal; that is, it is difficult to separate signals from noise.

Related techniques: Precursor Event, Change Signals Monitoring.

Reference: Martino, 1972.

Canonical Trend Variation

Canonical Trend Variation refers to a set of surprise-free projections used to develop an arbitrary, contrasting set of "standard worlds", or different potential futures for a given topic. By altering basic assumptions for one or more projection, one develops correspondingly different "standard worlds". Alteration of assumptions with corresponding outputs are called canonical trend variations. The results are not predictions or forecasts; rather, they are useful tools for intelligent conjecture.

Related Technique: Surprise-Free Projections.

Reference: Kahn-Weiner, 1967.

Change Signals Monitoring

A technique used to organize information when the focus is on key events or trends. It is based on a systematic, four-step procedure that involves 1) monitoring the environment for precursor signals, 2) identifying alternative consequences if the signaled changes are valid and persist, 3) selecting items to monitor continuously, and 4) organizing the results for presentation to the client.

Special Limitation: The use of this technique requires a model or theory showing the relationship of precursor signals to the changes of interest. The signals may be obscure or difficult to interpret.

Related technique: Precursor Event.

Reference: Bright, 1972.

Cost-Benefit Analysis

A technique to measure the costs of an alternative course of action to achieve some objective against the benefits resulting from taking that course.

Special Data Requirement: Estimates of costs and benefits are needed for all important factors identified in each procedure. When factors cannot be measured in monetary terms, subjective estimates are required. Subjective estimates must be based on good, intuitive insights and in-depth understanding of the subject matter.

Reference: Steiner, 1965.

Critical Event Filters (CEF)

This is a technique used in conjuction with PAMNACS and DENs (see separate entries). CEFs may be thought of as containers for holding data that are judged to *signify* that the activity modeled at given nodes in the PAMNACs and in the DENs is occurring. In a computer-based memory, the CEFs could be considered a portion of the memory in which such input data would

be stored.

Related Techniques: PAMNACs, DENs.

Reference: Clarkson, 1981.

Cross-Impact Analysis

Cross-Impact Analysis is a structured technique to compare individual forecasts, on a pair-wise basis, to determine whether there are any interactions between them. This technique also provides a systematic method for examining the interactions among several factors. The procedure is judgmental, but the use of experts and probabilities provides for extensive feedback and review.

Reference: Martino, 1972.

Cut and Paste

This is a "quick and dirty" technique for making minor changes in existing reports, situation assessments, etc. It can be quite useful under time constraints, or when the necessary changes are minor.

Reference: Clauser & Weir, 1975.

Decision/Event Networks (DEN).

DEN is an analytic technique that is used in conjunction and as an extension of PAMNACS. See "PAMNACS".

Delphi

This technique employs a panel of experts to render judgments as to timing, probability, and often implications of specified trends and events. The technique differs from the usual panel discussion in maintaining anonymity of panel members, through iteration of results with controlled feedback, and by providing a statistical group response. It is adaptable to almost any subject matter, but the topics to be forecast must be explicitly defined.

Related Techniques: Brainstorming, Panels.

Reference: Linstone & Turoff, 1975.

Decision Matrices

Decision matrices refers to a basic method in applied decision theory. This technique provides a systematic, comprehensive consideration of many interrelationships among those factors that are of interest. A two-dimensional decision table is used when two basic kinds of factors (e.g., resources *vs* requirements) are crucial, or a cube, when three factors are involved. Qualitative and quantitative procedures are used to specify each inter-relationship among all the factors considered. Horizontal matrices (interactions among factors at one level of generality) are relatively well developed but vertical matrices are more primitive because it is more difficult to estimate/quantify/specify relationships between different levels of detail.

Reference: Beyth-Marom & Lichtenstein, 1982.

Decision Theory

Decision Theory is an approach that refers to a large, varied, rapidly expanding body of basic and applied theory relating to processes for making a variety of types of decisions under many types and degrees of uncertainty. Decision theory is used as an aid in making rational choices in highly complex and uncertain situations, especially whenever the costs, risks, and potential benefits of the problem situation are large and/or critical. It can be applied to forecast requirements,

specifications, designs, and execution tasks.

Reference: Beyth-Marom & Lichtenstein, 1982; Janis & Mann, 1977; Raiffa, 1968; Steiner, 1969.

Dynamic Models

Dynamic models are used to study the interrelationships among internal activities, as dynamic changes from the environment are experienced. Successive relationships of key factors are determined and described by mathematical equations.

Special Data Requirements: Large amounts of input data and computer programs.

Special Limitations: Extremely complex. Some variables may be very difficult to quantify.

Reference: Steiner, 1969.

Exponential Smoothing

Using historical data, the average of a quantifiable variable becomes the forecast value. Historical data showing regular patterns for the selected variable over at least three equal time periods must be available. More recent data are given more weight than earlier data.

Special Limitation: Only one quantity can be forecast.

Related Technique: Historical Analogies.

Reference: Brown, 1963.

Game Theory

Game theory is a theory of decision making in a conflict or competitive situation. Participants attempt to influence the action so as to optimize the results for themselves. Game theory permits the decision maker to select an optimal course of action in light of the number of options available to each player and the rules of the game. An optimal course of action is one which maximizes the player's probability of success and minimizes the probability of loss or failure.

Reference: Clauser & Weir, 1975.

Goal Analysis

Goal analysis is a systematic five-step procedure for identifying the performances and tasks required that will achieve a goal. This technique is particularly useful when goals or objectives are not clearly stated.

Reference: Mager, 1972.

Historical Analogy

This approach seeks to draw parallels between past events and what may occur in the future. It can provide useful insights, but must be tempered with good judgment. Events rarely repeat themselves exactly, and causal relationships presumed for one era or condition may not apply in other circumstances, no matter how apparently identical. Therefore, this approach is generally not appropriate for detailed forecasts, but rather for suggesting likely directions of broad trends. Historical analogies should be based on recurrent analogous patterns.

Reference: Jervis, 1968.

Intuitive Analysis

Decisions vital to the accomplishment of military objectives are determined in large part by the intuitive judgments and educated guesses of decision makers or experts acting in their behalf. The critical role of intuitive judgments in

strategic analysis makes it important to be aware of the various cognitive biases described earlier. Intuitive analysis includes estimating the initial probabilities that serve as the starting point for Bayesian analysis. These estimates are normally based on strategic assumptions. Strategic assumptions are fundamental assumptions concerning intentions and capabilities. These assumptions tend to resist change, as they are based on a large body of interrelated evidence and have usually been held for a long time. Identifying assumptions is therefore an important part of doing intuitive analysis.

Reference: Heuer, 1978; Kahneman & Tversky, 1977.

KSIM

KSIM is a simulation technique that allows a group of "experts" from different disciplines to evaluate the interactions among variables and to test alternatives. It allows planners to understand system structure, relate quantitative and qualitative factors, and communicate the oucome of proposed planning interventions.

Related Technique: Cross-Impact Analysis.

Reference: Kane, 1972.

Leading Indicator

A leading indicator is any measure of the economy that moves in the same manner as the economy but does so several months ahead of the economy. Since it is based on past trends, it may fail to predict basic changes.

Special Data: Requires time series data on a standard base over a period of many years.

Reference: Box & Jenkins, 1970.

LRPE

LRPE is a methodology developed at ITAC to provide Force Planners with information about future Army battlefield environments. It indicates where, when, and why the Army will fight, as well as trends and problem areas that the Army must provide solutions for. The LRPE methodology is heavily based on historical knowledge and known problem areas. Using a standard set of indicators, it follows the development of relevant problems and issues. LRPE provides for periodic updates of indicators and allows systematic reevaluation of probable conflict situations.

Reference: ITAC.

Mission Flow Diagrams

Mission Flow Diagrams are a means for analyzing, organizing, and structuring a problem to insure completeness. It is a normative or goal-setting method of forecasting, used to identify bottlenecks that prevent the realizaton of otherwise promising paths. These bottlenecks can then serve as targets for advancement efforts.

Reference: Martino, 1972.

Multi-Attribute Utility (MAU)

Multi-attribute utility (MAU) models are a class of highly structured mathematical procedures for selecting a course of action from a set of alternatives. These procedures clarify the underlying structure of the decision- making problem, yielding information on the relative importance of the different factors that go into the decision. Unlike relevance trees, the factor of risk is incorporated into MAU's. Uncertainty and variations

in the ability to control threat, for example, create a situation in which risk is a factor. MAU's provide a mathematical framework in which alternatives can be evaluated with respect to risk and uncertainty.

Related Technique: Relevance Trees.

Reference: Beyth-Marom & Lichtenstein, 1982.

PAMNACS

PAMNACS stands for "Projected Alternative Major National Courses of Action". It is a structured form for expressing what are believed to be the most definitive national policies and courses of action of a given foreign country, with respect to key strategic aspects. PAMNACS must be flexible and easily changeable to accommodate new analytic perspective as they arise.

DENs are extensions of the PAMNACS. For each of the possible major national courses of action, a DEN is developed and serves as a means of further modeling the possible activity that the country of interest might exhibit when *implementing* that particular course of action.

Related Techniques: DENs, CEFs.

Reference: Clarkson, 1981.

Panels

In this technique, experts are brought together in open discussions to reach a consensus judgment concerning the future of a specified trend or prospect. Delphi is a special case of the use of panels for forecasting. Panel forecasting is suitable (but not necessarily best) whenever expert opinion is the major input.

Special Limitation: There is a danger of generating a "bandwagon" majority opinion. In addition, specialists are often unwilling to publically abandon previously expressed opinions.

Related Techniques: Delphi, Brainstorming.

Reference: Jantsch, 1967; Martino, 1972.

Precursor Events

A precursor event is any observable event or development in technology, economy, politics, or society, that clearly will cause another, subsequent future event.

Related Techniques: Change Signals Monitoring, Leading Indicator.

Reference: Handbook of Forecasting Techniques, 1975.

Probabilistic Forecasting

This technique refers to various statistical methods that include stochastic processes, Markov chains, Gaussian distributions, Bayesian statistics, Monte Carlo simulations, and Parametric Sensitivity analysis. Probabilistic forecasting can only be applied if the possible outcomes can be hypothesized.

Reference: Jantsch, 1969.

Relevance Trees

Relevance Trees is a simple form of multi-attribute utility model. It permits the structured consideration of the relevance or importance of various factors, attributes, and criteria as they contribute to an objective. Relevance trees are best applied to decisions under certainty conditions; that is, when the consequences of all available actions are known in advance. It can be used in conditons of uncertainty, if measurable criteria associated with

uncertain events can be reasonably well-defined. Such decisions as the analyst must make in tasking collection resources, or in situation and event analysis, can be served by this tool. In addition, however, the steps in creating the tree are of value even if the analysis is not used for decision making. The definition of objectives and characteristics, and the assigning of weights, can help analysts refine their baseline model of the situation, aiding them in taking advantage of the other tools at their disposal.

Related Technique: Multi-Attribute Utility Models.

References: Marples, 1974.

Scenarios

Scenarios are literary, numerical, and/or graphic narratives that describe and/or explore the implications of future sequences of events and states of affairs. Scenarios are more appropriate for interpreting forecasts or stimulating the imagination than for firm, rigorous forecasts. They are most useful when the writers integrate isolated and diverse specific projections and/or predictions, so that the user acquires a "feel" for the overall future state addressed by each isolated projection. Scenarios are particulary good for developing "worst case hypotheses".

Special Data: A large fund of data, information, and ideas pertinent to the topic are required. Personnel skilled in scenario-development should work in concert with subject matter experts.

Special Limitation: In scenarios, much may be implicit, ambiguous, and not necessarily supported by specific and valid forecasts. Writers need to have a clear sense of who the user is, what the topic is, and the intended uses of the scenario.

Reference: Jantsch, 1967.

Scientific Method

The Scientific Method is a prescription for understanding one's environment so as to have more control over it. Control includes the ability to predict unexpected outcomes. The Scientific Method involves the following steps: 1) the researcher makes observations either directly or vicariously by studying reports of earlier observations and measurements; 2) the researcher formulates a model or hypotheses to account for the observed phenomena; 3) the researcher subjects the model or hypotheses to a test (the experiment), checking underlying assumptions, measurements, and logic at each step; 4) the researcher compares the results of the tests against the predicted results and draws conclusions concerning the validity of the initial hypotheses or model; 5) after the initial hypotheses or model have been upheld, the model can be used to derive new hypotheses or predictions that can be subjected to further tests.

Reference: Clauser and Weir, 1975.

Simple Regression

A linear algebraic relationship is defined between two variables. The statistical method of least squares is used to determine the equation of the relationship. It may be used whenever there is sufficient and accurate historical data to define the linearity of a relationship.

Special Limitation: The method can only be used for two variables. Multiple regressions can deal with multiple variables, but it only forecasts one.

Reference: Problem Solving Techniques for Intelligence Analysts, 1981.

Social Trend Analysis

Social Trend Analysis refers to any of a variety of procedures for identifying, specifying, and interpreting continuities, discontinuities, and change rates for any number of specific phenomena.

Special Limitation: Weak or non-existent theories about processes of social change are a serious limitation to the use of this technique.

Related Techniques: Leading Indicators, Trend Extrapolation.

Reference: Handbook of Forecasting Techniques, 1975.

Synectics

Synectics is a non-analytical approach to inducing creative thinking that may be applied to inventing products, social issues, alternative futures, etc. Thinking in analogies plays a major role in the 9-step process defined as Synectics. The technique forces imaginative, non-routine thinking about problems and often comes up with "inspired" solutions. The system is an aid to forecasting, but does not by itself produce forecasts.

Special Data: Data on the problem and prior, unsuccessful approaches to its solution are used.

Related Technique: Brainstorming.

Reference: Handbook of Forecasting Techniques, 1975.

Systems Analysis

Broadly, systems analysis refers to an orderly, analytic study of a system that is designed to help decision makers identify a preferred course of action from among possible alternatives to achieve an objective. It is primarily an "art" that requires specialized mathematical techniques of Operations Research. An approach to complex problems of choice under uncertainty that systematically examines the costs, effectiveness, and risks of various alternatives. It has many uses in military applications. This approach provides a systematic way to take large tasks and divide them into manageable subtasks. Systems Analysis helps decision-makers sharpen their judgments and deal effectively with important, broad, and ill-structured problems. It is less an actual technique than a way of thinking.

Special Data: The data requirements depend on the specific problems investigated.

References: Quade, 1973; Steiner, 1969; Jantsch, 1969.

Time-Lines

Time-Lines are structured aids that permit the representation of complex events or tasks with respect to time and interdependencies. Structured dependency diagrams facilitate a standardized graphic representation of events so that analysts can recognize relationships, critical paths, critical events, etc. There exist several different, specific methods that are all considered Time-Line techniques.

Reference: Zeldman, 1978.

Trend Extrapolation

Trend Extrapolation refers to one of the more common methods of forecasting future conditions or trends. It involves projecting into the future the trends or conditions that have existed in the past and exist in the present.

Related Techniques: Historical Analogy, Simple Regression.

Reference: Clauser & Weir, 1975.

War Gaming

War games are experiments with alternative tactics and strategies in a conflict situation. Game theory can provide a theoretical basis for war gaming, but is not synonymous with it. War gaming can be represented as games, models, or simulations. A game is a contest played according to rules and decided by skill, strength, or chance. A model is a representation of a process or an object, while a simulation is a dynamic imitation of a process.

Reference: Clauser & Weir, 1975.

References

Beyth-Marom, R. & Lichtenstein, S. *An Elementary Approach to Thinking under Uncertainty.* ARI, May, 1982.

Box, G. & Jenkins, G. *Time Series Analysis: Forecasting and Control.* Holden-Day, Calif., 1970.

Bright, J. *A Brief Introduction to Technological Forecasting.* Pemaquid Press, Texas, 1972.

Brown, R.G. *Smoothing, Forecasting, and Prediction of Discrete Time Series.* Prentice-Hall, N.J., 1963.

Clarkson, A. *Toward Effective Strategic Analysis.* Westview Press, Boulder, Colorado,1981.

Clauser, J.K. & Weir, S.M. *Intelligence Research Methodology.* Defense Intelligence School. Washington, D.C., 1975.

Griffith, D. *A Review of Literature on Memory Enhancement: The Potential and Relevance of mnemotechnics for Military Training.* AD A086 407. Dec., 1979.

Handbook of Forecasting Techniques. Defense Technical Information Center. Technical Report, 1975.

Heuer, R.J. *A Problem Solving Perspective on the Role of Methodology in Government Foreign Affairs Analysis.* Paper, Washington, D.C. 1978.

Jackson, K.F. *The Art of Solving Problems.* Morrison & Gibb, Ltd., London, 1975.

Janis, T.L. & Mann, L. *Decision Making: A Psychological Analysis of Conflict, Choice, and Commitment.* Free Press, New York, 1977.

Jantsch, E. *Technological Forecasting in Perspective.* Organization for Economic Cooperation and Development, Paris, France, 1967.

Jervis, R. *Hypotheses on Misperception.* World Politics, 20, 1968.

Kahn, H. & Weiner, A. *The Year 2000.* MacMillan, New York, 1967.

Kahneman, D. & Tversky, A. *Intuitive Prediction: Biases and Corrective Procedures.* DARPA Technical Report PTR-1042-77-6. Decision Research; Eugene, Oregon, 1977

Kane, J. *A Primer for a New Cross-Impact Language--KSIM.* Technological Forecasting and Social Change. Vol. 4, No. 2, 1972.

Linstone, H. & Turoff, M. (Eds.) *The Delphi Method: Techniques and Applications.* Addison-Wesley, Mass., 1975.

Lorayne, H. & Lucas, J. *The Memory Book.* Ballantine Books, 1975.

Mager, R.F. *Goal Analysis* Fearon Publ., Calif., 1972.

Marples, D.L. *Argument and Technique in the Solution of Problems in Mechanics and Electricity.* Cambridge University, 1974.

Martino, J.P. *Technological Forecasting for Decisionmaking.* American Elsevier, New York, 1972.

Nirenberg, J.S. *Getting through to People.* Prentice-Hall, New Jersey, 1973.

Problem Solving Techniques for Intelligence Analysts. Problem Solving Handbook Project. ORD/ACS, 1981.

Polya, G. *How to Solve it.* Doubleday, New York, 1957.

Quade, E.S. *Analysis for Military Decisions.* Rand McNally, Chicago, Ill., 1964.

Raiffa, H. *Decision Analysis* Addison-Wesley, Mass., 1968.

Rubinstein, M. & Pfeiffer, K. *Concepts in Problem-Solving.* Prentice-Hall, Inc., New Jersey, 1980.

Steiner, G.A. *Top Management Planning.* MacMillan, New York, 1969.

VanGundy, A.B. *Techniques of Structured Problem Solving*. Van Nostrand Reinhold Co., New York, 1981.

Wickelgren, W.A. *How to Solve Problems: Elements of a Theory of Problems and Problem Solving*. Freeman, San Francisco, 1974.

Zeldman, M. *Keeping Technical Projects on Target*. AMA Management Briefing, American Management Association, 1978.

APPENDIX H

Worksheet for Identifying Informational Value of Data

APPENDIX H.

IDENTIFYING THE INFORMATIONAL VALUE OF DATA

Data have informational value to the extent that they help you to differentiate between hypotheses you are evaluating and to the extent that they support or refute a given hypothesis. A piece of information has maximum value for discriminating between two hypotheses when it supports one hypothesis and refutes the other. When the information supports both hypotheses, it is not useful for evaluating the likelihood of one hypothesis relative to the other. Of course the information may be valuable for other reasons, but in this case it is not helpful in differentiating between the two hypotheses you are currently evaluating.

The sample worksheet included in this appendix (Table H-1) is one technique for evaluating and keeping track of the informational value of data. You can develop and use your own worksheet by following these simple steps:

1. In the left-hand column list the pieces of information or data that you have to evaluate.
2. Along the top of the worksheet list the two or more hypotheses that you are evaluating.
3. For the first piece of information, place a checkmark under the "supports", "refutes", or "neither supports nor refutes" column for each of the hypotheses.
4. Look at the pattern of checkmarks for that item and determine its informational value. Use "++", "+", and "0" to rate the information, as suggested in the sample worksheet, or develop your own numerical rating system.
5. Repeat steps 3 and 4 for all other pieces of information.

Once you have filled in the worksheet, you can use the "informational value" column to identify those pieces of information that are most useful for differentiating between your hypotheses. For purposes of determining which hypothesis if more likely to be correct, the most weight should be given to the information with the highest informational value. If there is insufficient evidence to select one hypothesis over another, you will need to gather more information. The type of information you gather should be carefully chosen for its potential to discriminate between hypotheses.

Information	Hypothesis A			Hypothesis B			Informational Value*
	Supports	Refutes	Neither Supports Nor Refutes	Supports	Refutes	Neither Supports Nor Refutes	

*0 if both "support" or both "neither"
++ if one "supports" and one "refutes"
+ for all other combinations of checkmarks

Table H-1. Worksheet for Identifying the Informational Value of Data

APPENDIX I

Courses Available for Strategic Analysis Training

APPENDIX I

COURSES AVAILABLE FOR STRATEGIC ANALYSIS TRAINING

1. Introduction

This appendix describes a wide variety of courses and training programs that are available in the metropolitan Washington, D.C. area. Likewise, the institutions and courses listed can help you increase your ability to "think red". While academically oriented, these programs will help you round out your expertise and assist you in the development of a broader understanding of the political and military environment within which military force is employed.

This list is not all inclusive. It is particularly lacking in the more technically-oriented areas. The courses included are likewise not necessarily required for your own personalized training schedule, but are simply an aggregation of what is locally available. What is important is that you review these and begin to think about your own deficiencies in training and experience and set up a program to address them.

In compiling this information, course names and descriptions were taken directly out of the course catalogs of the institutions that were considered. There is therefore no guarantee that the information is 100 percent accurate. Times, dates, prerequisites, registration information, etc., have not been included since they are subject to frequent change. If you are interested in taking a particular course it is up to you to seek out this kind of information. The information provided here should give you a good start.

2. Education and Training: Local Institutions

a. The American University (AU)
Massachusetts and Nebraska Avenues NW
Washington, D. C. 20016
Registration: (202) 686-2200

b. The Catholic University (CUA)
620 Michigan Avenue NE
Washington, D. C. 20064

c. Defense Intelligence College
Anacostia Naval Station Annex
Washington, D. C. 20374
Information: (202) 695-0047

d. Foreign Service Institute (FSI)
1400 Key Boulevard
Arlington, Virginia 22209
Information: (202) 235-8727

e. George Mason University (GMU)
4400 University Drive
Fairfax, Virginia 22030
Registration: (703) 323-2141

f. George Washington University (GWU)
2121 "I" Street NW
Washington, D. C. 20052
Registration: (202) 676-6286

g. Georgetown University (GTU)
37th and "O" Streets NW
Washington, D. C. 20057
Registration: (202) 625-4373

h. University of Maryland (UM)
College Park Campus
College Park, Maryland 20742
Registration (301) 454-5559

3. Courses for the Strategic Analyst

The course listings below are grouped into the following topical categories:

- International Relations
- National/International Security
- U.S. Foreign Policy
- Ideology and Political Thought
- Quantitative Methods of Analysis
- Cognitive Training
- Government and Public Administration
- Area Studies
  - Eastern Europe and the USSR
  - Asia and the PRC
  - The Third World
  - The Middle East and North Africa
  - Latin America
  - Africa

3.1 International Relations

Typically these courses focus upon modern thought in International Relations theory, contemporary international political and economic issues, comparative politics and foreign policy decision-making.

- Advanced International Relations (GMU) 340
- Comparative Study of Foreign Policy (UM) GVPT 450
- Comparative Politics: change Leadership, Participation (AU) 53.230
- Contemporary Theories and Concepts of International Relations (CUA) Pol 631
- Foreign Policy and Analysis (GMU) Govt 44
- Foreign Policies of the Great Powers (AU) 33.381
- Functional Problems in International Relations - Comparative Systems (UM) GVPT 401
- Perspective on World Affairs (GTU) IA 106
- Seminar in International Relations Theory (UM) GVPT 706

3.2 National/International Security

These core courses deal with domestic or international issues that have an impact upon the security of the U.S. and the world. Topics will frequently include trade, economic stability, resources, terrorism, warfare, technology, arms control, and nuclear proliferation. These courses may also include discussions of national or international security organizations and mechanisms.

- American Defense Policy (GTU) IA 450
- American Defense and Security Policy (AU) 33.384
- "Arms and Men": Aspects of War in History (AU) 29.260
- Conflict and Security in International Affairs (GTU) IA 123
- Developmental Conflicts and Political Change (AU) 53.631
- Economic Issues and National Security (CUA) Pol 567
- Energy and National Security (GTU) IA 121
- Interdependence, Scarcity and Power (AU) 53.331
- International Conflict and Conflict Resolution (AU) 33.588
- The International Politics of the Atlantic Alliance (CUA) Pol 575

- International Security Affairs (CUA) Pol 534
- Issues in International Security (GMU) Govt 444
- Law Morality and War (UM) GVPT 403
- Military Force and Foreign Policy (GWU) PS 149
- National Security and Arms Control (FSI) P107
- The National Foreign Intelligence Community (DIC) SM605
- National Security Decision-Making (GTU) IA 350
- National Security Policy (AU) 33.684
- Revolution and Violence (AU) 53.431
- Science, Technology and World Order (GWU) PS 252
- Seminar on the Cold War (GTU) IA 444
- Seminar: Contemporary Military Strategy (CUA) Pol 736
- Seminar in History of Modern Wars (UM) HIST 859
- Seminar: International Politics of the Atlantic Alliance (CUA) Pol 704
- Seminar in National Security Policy (UM) GVPT 876
- Strategic Intelligence and World Power (GTU) IA 377
- Twentieth Century Wars and Change (AU) 29328
- U.S. Nation Security Policy (GWU) PS 248
- War and the Military in American Life (GMU) 413, 414

3.3 Foreign Policy

These courses provide an introduction to the formation and implementation of American foreign policy. Emphasis may be on the central issues, history, and roots of American foreign policy and also include the study of the domestic mechanisms and influences on the conduct of foreign affairs. Several courses focus upon comparative approach to the analysis of U.S. Foreign policy.

- American Foreign Policy (GMU) Govt 344
- The Analysis of United States Foreign Policy (AU) 33.382
- Elements in Foreign Policy Making (GTU) IA 134
- Intelligence and Foreign Policy (FSI) P104
- Seminar in Policy Analysis (AU) 33.489
- United States Foreign Policy (AU) 33.682
- United States Foreign Policy (CUA) Pol 535
- United States in World Affairs (AU) 33.583

3.4 Ideology and Political Thought

These courses trace the development and practice of contemporary theories of political thought and practice. They include such topics as marxism, fascism, totalitarianism, corporatism and pluralism.

- Authoritarian Regimes: Generals, Presidents and Kings (AU) 53.430
- Communism in Non-Communist Europe (GWU) PS 263
- Current Problems in Political Theory (UM) GVPT 848
- History and Politics of the International Communist Movement (CUA) Pol 637
- Marxist Political Theory (UM) GVPT 845

- Modern Communist Ideologies (GWU) PS 108
- Non-Western Political Thought (UM) GVPT 448
- Readings in Socialism and Communism (GWU) PS 207
- Readings in Marxism-Leninism (GWU) PS 208
- Seminar in Non-Western Political Theory (UM) GVPT 847
- Theories of Democracy (UM) GVPT 846
- Theories of International Politics (GWU) PS 240

3.5 Quantitative Methods of Analysis

The fastest growing analysis discipline is in the area of quantitative methodologies. These courses tend to emphasize the application of such techniques for bivariate and multivariate analysis such as correlation, regression, discriminant analysis, factor analysis, and analysis of variance. Many of these courses also stress concepts and approaches to research, the philosophy and benefits of scientific inquiry, research design, hypothesis testing, and computer applications.

- Advanced Quantitative Methods for Political Science (UM) GVPT 722
- Applied Foreign Policy Analysis (UM) GVPT 850
- Aspects of Probability Theory for the Intelligence Analyst
- Conduct of Political Inquiry and Research I, II (QU) 53.612
- Empirical Political Analysis (GWU) PS 102
- Introduction to Political Research (AU) 53.310
- Methods of Multivariate Statistics (CUA) PSY 760
- Political Science Research (AU) 53.610
- Quantitative Analysis (DIC) SS350
- Quantitative Methods for Political Science (UM) GVPT 622
- Quantitative Political Analysis (UM) GVPT 422
- Scope and Method of Political Science (UM) GVPT 700
- Scope and Methods of Political Science (GWU) PS 101
- Social Science Methodology (CUA) PSY 705, 706
- Statistical Methods I, II (CUA) ASY 705, 706
- Statistics for Analysts and Managers (DIC) SS550
- Workshop in Quantitative Methods and Research Design (CUA) Pol 525

3.6 Strategic Intelligence Operations

- Basic DIAOLS/COINS Course (DIC) SS300
- Communicative Skills for Intelligence Operations (DIC) SO201
- Intelligence Analyst Course (IAC) (DIC) SO300
- Intelligence Collection Management Course (ICMC) (DIC) SO305
- Scientific and Technical Intelligence Analyst Introductory (DIC) SO350
- Indications and Warning Course (I&W) (DIC) SO380
- Introduction to Intelligence Production and Analysis (DIC) SO402
- Intelligence Operations Overview (DIC) SO600
- Survey of Intelligence Collection (DIC) SO603

- Advanced Methods of Intelligence Collection (DIC) SO604
- Introduction to National Intelligence Production(DIC) SO606
- Advanced Estimative Intelligence (DIC) SO621
- Scientific and Technical Intelligence I (DIC) SO652
- Scientific and Technical Intelligence II (DIC) SO653
- Introduction to Indications and Warning Intelligence and Terrorism (DIC) SO680

3.7 Government and Public Administration

- Bureaucratic Power and Decision Modeling (AU) 53.360
- Leadership for Human Resource Development (AU) 54.640
- The Machiavellianism and Modern Organization (AU) 53.460
- Readings in Organizational Theory (CUA) Pol 522

3.8 Area Studies

As an ITAC analyst you will undoubtedly be tasked to examine aspects of a foreign military system, doctrine, armed forces organization, tactics, capabilities, etc. As noted in Chapter 4, the analyst who has a broad knowledge about an enemy will have an advantage over the analyst who does not. The following course listings are broken down according to geographic area.

3.8.1 Eastern Europe and the USSR

- Contemporary Governmental Institutions - Soviet Union (UM) GVPT 881
- Contemporary East Europe (AU) 33.259
- Contemporary Russia (AU) 33.258
- Early Russian History 988-1700 (AU) 29230
- Eastern Europe Since 1815 (AU) 29.314
- Foreign Policy of the USSR (UM) GVPT 451
- The Government and Politics of Eastern Europe (CUA) Pol 586
- The Government and Administration of the Soviet Union (UM) GVPT 481
- The Government and Politics of the Soviet Union (CUA) Pol 585
- The History of Russia to 1801 (UM) HIST 424
- The History of Russia from 1801 - 1917 (UM) HIS 425
- Imperial Russia 1700 - 1917 (AU) 29.231
- International Relations of the Soviet Union (AU) 33.659
- Introduction to Soviet Armed Forces (DIC) SA462
- Modern Balkan History (UM) HIST 442
- Modern Russia and the Soviet Union (GMU) HIST 329
- Russian Political Thought (UM) GVPT 445
- The Russian Revolution and the Origins of the Soviet State (GMU) HIST 745
- Russian Studies (AU) 29345
- Seminar in Russian History (UM) HIST 849
- Seminar in East European History (UM) HIST 850
- Soviet Foreign Policy (GWU) PS 168

- Soviet Military Policy and Strategy (GWU) PS 269
- Soviet Political System (AU) 33.558
- The Soviet Union in World Affairs (AU) 33.359
- Soviet Union, 1917 to Present (AU) 29.232
- Soviet-West European Relations (GTU) IA 136

3.8.2 Asia and the PRC

- Asian Power Rivalries (AU) 33.366
- Comparative Governmental Institutions: Asia (UM) APTV 883
- Contemporary East Asia (AU) 33.261
- Contemporary South Asia (AU) 33.263
- East Asia (FSI) R104
- Foreign Policy of the PRC (GWU) PS 272
- Governments of Japan and Korea (GWU) PS 276
- Government and Politics of Asia (GMU) Govt 333
- Government and Politics of Asia (UM) GVPT 483
- Government and Politics of South Asia (UM) GVPT 487
- History of Chinese Communism (UM) HIST 485
- History of Modern China (UM) HIST 481
- International Politics of Asia (CUA) Pol 571
- International Politics of the Far East (GWU) PS 275
- International Relations of East Asia I, II (AU) 33.567
- International Relations of Southeast Asia (AU) 33.569
- Modern Asia (AU) 29.250
- Modern China (AU) 33.561
- Modern China (BMU) HIST 354
- People's Republic of China (FSI) R103
- Recent Asian Politics
- South Asia (FSI) R108
- Survey of China (DIC) SA401

3.8.3 The Third World

- Seminar in the Politics of Developing Nations (UM) GVPT 887
- Third World Politics (AU) 53.231

3.8.4 The Middle East and North Africa

- Comparative Governmental Institutions-Middle East (UM) GVPT 885
- Contemporary Middle East (AU) 33.264
- The Contemporary Middle East (UM) HIST 492
- Contemporary Middle Eastern Politics (UM) GVPT 455
- The Cultural History of the Islamic World (GMU) HIST 783
- Government and Politics of the Middle East and North Africa (GMU) Govt 332
- Government and Politics of North Africa (GWU) PS 28
- Government and Politics of the Middle East (UM) GVPT 485
- International Relations of the Middle East I, II (AU) 331.571
- International Relations of the Middle East (GWU) PS 178

- The Middle East in the 20th Century (GMU) Pol 465
- The Modern Arab World (AU) 33.564
- Near East and North Africa (FSI) R107
- Politics and Foreign Policy in the Middle East (GTU) IA 132
- Survey of the Middle East (DIC) SA421

3.8.5 Latin America

- Contemporary Latin America (AU) 33.276
- Diplomacy and War in Latin America (GMU) HIST 470
- Diplomatic History of Latin America (UM) HIST 470
- Government and Politics of Latin America (GMU) Govt 331
- Government and Politics of Latin America
- Government and Politics of Latin America (UM) GVPT 482
  History of the Argentine Republic (UM) HIST 472
- History of Argentina, Brazil and Chile (GMU) HIST 363
- History of Brazil (UM) HIST 471
- History of Mexico and Central America I, II (UM) HIST 474
- History of the Spanish Caribbean (UM) HIST 473
- Inter-American Relations (UM) GVP 452
- International Relations of Latin America I, II (AU) 33.577
- International Relations of Latin America (GWU) PS 284
- Latin America (FSI) R106
- Latin America Since Independence (AU) 29.242
- Survey of Latin America (DIC) SA401
- United States Policy in the Western Hemisphere (CUA) POL 574

3.8.6 Africa

- Africa, Sub-Sahara (FSI) R101
- African International Relations (GTU) 357
- Comparative Governmental Institutions - Africa (UM)
- Contemporary Africa (AU) 33.265
- Contemporary African Politics (UM) GVPT 454
- Economic History of West Africa (UM) HIST 497
- Government and Politics of Africa (UM) GVPT 484
- A History of West Africa (UM) HIST 496
- Topics in African Politics (GWU) PS 281
- International Relations of Africa I, II (AU) 33.573
- U.S. African Relations (GTU) IA 117

Index

INDEX

TOPIC	PAGE
Analysis	
Create Information from Sparse Data	4-4
First Step in Problem Solving	4-3
Mental Process	4-4
Army Intelligence System	D-2
Army Studies and Analysis Community Organizations	D-3
Central Intelligence Agency (CIA)	D-2
Defense Intelligence Agency (DIA)	D-2
Director of Central Intelligence (DCI)	D-1
Forecasts	4-5
ITAC	
Configuration	A-2
Consumers	2-4
Commander	A-3
Foreign Forces Capabilities Directorate	A-4
Goal	2-5
History of	2-1
Intelligence Production Directorate	A-5
Mission	2-3
Products	
Army Intelligence Survey (AIS)	C-3
Army Threat Studies	C-7
Capstone Studies	C-1
Counter Intelligence Production	C-6
Environmental Studies	C-1
Hostile Intelligence Service/Foreign Intelligence Security Service (HOIS/FISS) Threat	C-8
Long Range Planning Estimate (LRPE)	C-1
Quality	3-1
Non-US-NATO Production	C-8
Resources used in	2-4
Soviet Battlefield Development Plan (SBDP)	C-4
Special Studies	C-6
Strategic Overviews	C-2
System Threats	C-7
Standard	2-4
Support Management Directorate	A-8
Technical Services Directorate	A-7
Task Organization	B-1
Values	2-4
Welcome To	1-1

TOPIC	PAGE
Methodology	
Anomalous Event Matrix (ANEM)	G-9
Assumptions, Identifying	E-1
Bayesian Analysis	G-9
Brainstorming	G-9
Breakthrough	G-9
Canonical Trend Variation	G-10
Change Signals Monitoring	G-10
Cognitive Biases	E-4
Communication Skills	E-16
Cost Benefit Analysis	G-10
Critical Event Filters (CEF)	G-10
Cross Impact Analysis	G-11
Cut and Paste	G-11
Decision Event Networks (DEN)	G-11
Decision-making Strategies	E-15
Decision Theory	G-11
Delphi	G-11
Dynamic Model	G-12
Exponential Smoothing	G-12
Fault Tree	5-13
For Strategic Analysis	5-1
Step 1. Understanding the Intelligence Requirement	5-3
Step 2. Prepare an Initial Intelligence Survey	5-4
Step 3. Select an Analytic Methods	5-8
Step 4. Execute the Analytic Method	5-10
Step 5. Prepare a Revised Intelligence Assessment	5-12
Step 6. Produce a Report of the Production Results	5-14
Game Theory	G-12
Goal Analysis	G-12
Historical Analogy	G-12
Intuitive Analysis	G-12
KSIM	G-13
Leading Indicator	G-13
LRPE	G-13
Mission Flow Diagrams	G-13
Multi-Attribute Utility (MAU)	G-13
PAMNACS	G-14
Panels	G-14
Precursor Events	G-14
Probabilistic Forecasting	G-14
Problem-Solving Skills	E-7
Probability Assessment	E-11
Regression	G-15

TOPIC	PAGE
Relevance Trees	G-14
Scenarios	G-15
Scientific Method	G-15
Social Trend Analysis	G-16
Synectics	G-16
Systems Analysis	G-16
Time Lines	G-16
Trend Extrapolation	G-16
War Gaming	G-17
Management of Strategic Intelligence Production	3-1
Information Resources	3-2
Requirements	3-3
Periodicals	6-3
Projections	4-5
National Security Agency (NSA)	D-2
Resources	
Analysts	3-2
Collection Systems	3-2
Data Bases	6-2
Information Repositories	3-3
Library, Exploitation of	6-2
Personal Information Networks	2-4
Production Multipliers	3-4
Strategic Intelligence Analysis	
Conducting	4-8
Definition	4-1
Goal of (ITAC)	4-1
Introduction to	4-1
Know the Enemy -- Think Red	4-8
Know the Environment - Think White	4-10
Know our Programs and Capabilities -- Think Blue	4-10
Levels of	4-6
Nature of	4-3
Tactical Intelligence Analysis	4-2
Universities	I-1

102485